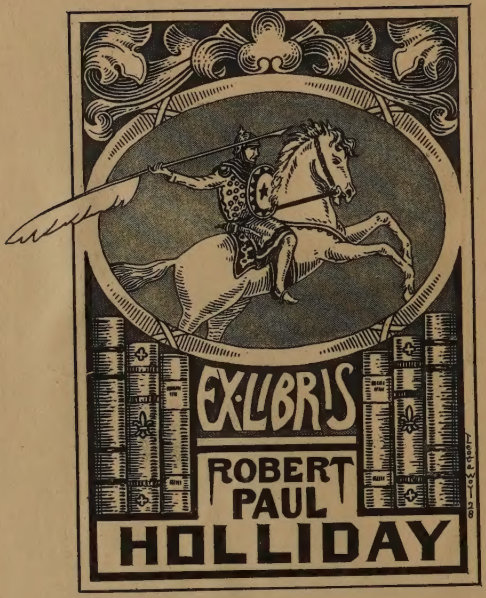
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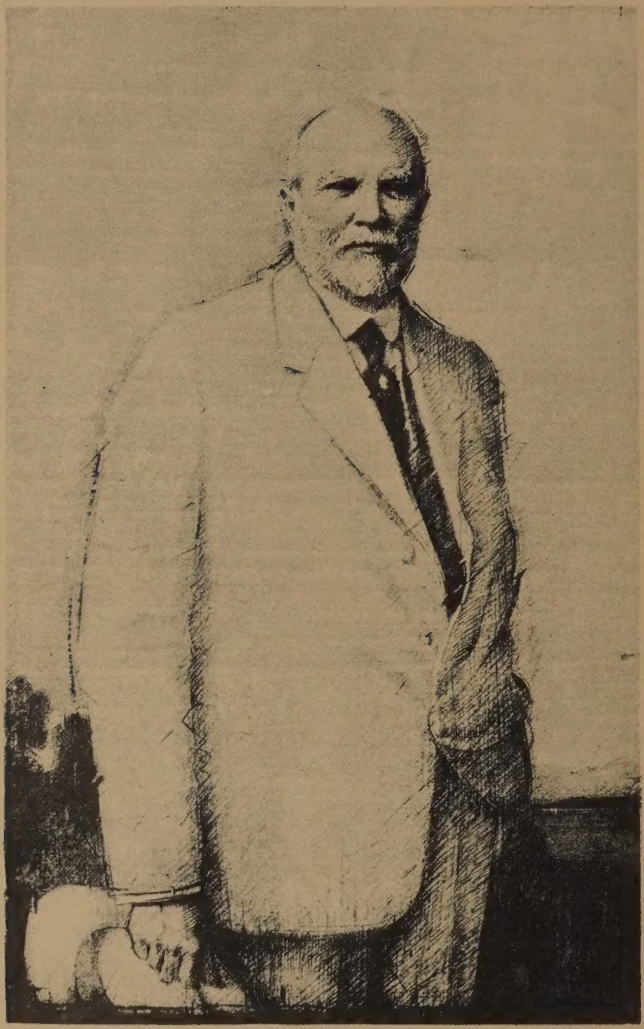


GEORGE CHAFFEY

From a Pastel Study by Max Wieczorek

THE LIFE OF
GEORGE CHAFFEY

A Story of Irrigation Beginnings in California and Australia

By J. A. ALEXANDER

With A FOREWORD by

The Rt. Hon. STANLEY MELBOURNE BRUCE, P.C., C.H., M.P., M.C., LL.D., Prime Minister of Australia ;

An INTRODUCTION by

Dr. ELWOOD MEAD,

Commissioner of the United States Bureau of Reclamation, and formerly Chairman of the State Rivers and Water Commission of Victoria, Australia;

And A CHAPTER ON THE IMPERIAL VALLEY by

H. T. CORY, B.S., M.M.E., M.C.E.

MELBOURNE:
MACMILLAN & CO. LTD.
HEAD OFFICE - - LONDON
1928

"*And he shall be like a tree planted by the rivers of water, that bringeth forth his fruit in his season; his leaf also shall not wither; and whatsoever he doeth shall prosper.*"

(*Psalm I.* 3.)

. . . . . .

Veritas temporis filia

. . . . . .

TO THE ILLUSTRIOUS MEMORY OF

ALFRED DEAKIN,

APOSTLE OF THE IRRIGATION ERA IN AUSTRALIA,

THIS WORK IS REVERENTLY DEDICATED

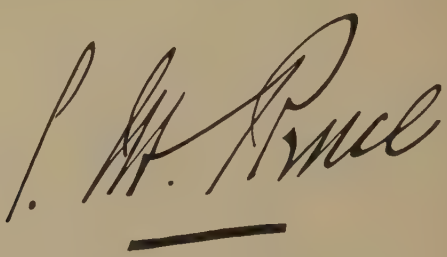
FOREWORD

NATURE with a prodigal hand has bestowed her bounties on Australia. The Commonwealth is rich in natural resources. She lacks but one thing—internal waterways. She has no rivers comparable with the Mississippi or Missouri, the Rhine or the Orinoco. But she has an ample annual rainfall, and her rivers carry a sufficient volume of water which when conserved provides storage for great schemes of settlement by irrigation. There are vast areas of rich soil to which the application of water spells the difference between aridity and fertility.

Mr. George Chaffey, a man of wide vision, realized this. His name has an honored place for all time in the ranks of Australia's pioneers. His arrival in Victoria in 1886 *inaugurated a new era in the history of Australian land settlement. At Mildura and Renmark, he and his younger brother (the late Mr. W. B. Chaffey) successfully established the parent irrigation settlements in Australia. They were the first to demonstrate that the arid regions of the great Murray Valley could be permanently settled in small holdings. Their example has led to the completion of other irrigation schemes, such as the Goulburn Valley Works in Victoria; the Burrinjuck scheme in New South Wales, which locks the waters of the Murrumbidgee; and the greatest of all projects to date—the locking of the Murray River, which will, when completed, bring two million acres under cultivation and provide for a population of about three-quarters of a million.*

Mr. George Chaffey and his brother taught the lesson that the problem of Australia's unsettled interior is not one of unproductive land, but that water conservation and supply can make the land "yield forth its increase."

The irrigation settlement which Mr. Chaffey established at Mildura has demonstrated this truth. To Australia he brought with him the colonization system he created in California of individual ownership of land and mutual ownership of water. In that, Mr. George Chaffey introduced into Australia a closer settlement policy on which was based all subsequent schemes of irrigation settlement in this Continent. Swift placed amongst the highest endeavors of mankind the capacity to make two blades of grass grow where only one grew before. Mr. George Chaffey has done better than that. Through his genius and enterprise Australia has permanently benefited, and we and future generations of Australians will remember him and his work with gratitude.



Parliament House,
Canberra, June, 1928.

AUTHOR'S PREFACE

George Chaffey has always displayed a supreme disregard for the personal side of his career. His outlook has been essentially objective. Forgetful of self, he has ever been immersed in great projects involving the destinies of others. That is why in this book the personality of the man himself is so often obscured by his work. This is not put forward in extenuation of the defects which the reader will find in this biography, but in explanation of the fact that it is a narrative of achievement rather than a study of personality, which a biography should be.

Whatever its shortcomings, this is an honest attempt to tell in plain terms a story that such high authorities as Dr. Elwood Mead and Mr. H. T. Cory agree should be told—until now an unwritten chapter in the history of California and of Victoria. Behind the engineering problems of the irrigation projects which George Chaffey conceived and carried to fruition lay a deep human interest. All were touched with the romance of daring endeavor in the face of long odds. All provoked warm, often bitter, controversy; but George Chaffey's spirit rose serene above the clash of personality and of faction. Realising that truth is the daughter of time, he left the verdict to history.

George Chaffey's eleven years' experience in the arid regions of Victoria and South Australia profoundly influenced the future of Southern California. It inspired him to undertake the project which transformed one of the most desolate regions of the Americas into a garden now exceeding 500,000 acres in area—the far-famed Imperial Valley.

George Chaffey having kept no written record of his remarkable career in two continents, it is mainly due to his son Andrew, and to others prominently associated with his enterprises, that the letters and documents which made this work possible have been preserved.

Dr. Elwood Mead, formerly head of the State Irrigation system of Victoria, now chief of the United States Reclamation Service, not only strongly urged that this book should be written, when the project was placed before him, but readily consented to write the introductory chapter with which it begins. That, and the

chapter generously contributed by Mr. H. T. Cory, one of the most eminent of American engineers, have given this work the stamp of authority which it could not otherwise have had.

I am also grateful to Mrs. Alfred Deakin, who made a laborious search through some of her illustrious husband's papers for documents relating to his historic irrigation crusade and to his connection with the Chaffey Colonies. Above all, I am indebted to the assistance and criticism of my friend, Mr. A. S. Kenyon, of the Victorian Rivers and Water Supply Commission.

Melbourne, June 27, 1928. J.A.A.

INTRODUCTION

By Dr. Elwood Mead

The conquest of aridity is never a simple achievement. Reclamation involves a succession of operations widely differing in character, and is influenced by such varied factors that a satisfactory final result is attained only when the enterprise is directed throughout by sound judgment and a thorough understanding of conditions. To its engineering problems is added the more complex task of working out right economic and human relations. It is true that lands have been reclaimed by men working without plan or direction, but always at a waste of time and effort and often with disastrous results.

The difference between expert and unplanned direction in irrigation development is very great. The millions of dollars lost in investments that have failed prove this as clearly as the triumphant achievements. Everything depends on ability to forecast the future. The products of an acre of irrigated land in Arizona are worth five times those of an irrigated acre in Montana, although the cost of production may be the same. The difference is due to climate. This was not realized thirty years ago. Once all soils were regarded as suitable. Now no great irrigation enterprise is undertaken without a soil survey, and under Federal reclamation, charges for water are now based upon a soil classification. In the pioneer era of American irrigation development it was confidently assumed that anyone could become an irrigation farmer; that once planted on the land any kind of a cultivator could dig in and succeed. Now we know that only intense culture will pay the added costs of irrigation, and that in every locality there must be one or more money crops of high acreage value. Only in this way can the added costs of irrigation be met.

As population has increased and civilization advanced, the demands for water have increased, and there have been added to the use of water for irrigation the growing demands of cities

and towns for water for industrial purposes. The utilization of the energy of flowing water in the generation of hydro-electric power has also changed the plans and enlarged the possibilities of reclamation. The old water wheels had low efficiency. Modern ones have remarkably high efficiency. Inventions and discoveries making it possible to transmit hydro-electric power long distances at small cost and with small loss, have given new values to streams, and in many places led to a struggle between power and irrigation for their control; or, better than this, to a combination of power and irrigation in plans for enlarging the use of water and increasing wealth in land. This brief outline of some of the factors which influence success in irrigation is needed to enable us rightly to appraise Mr. George Chaffey's achievements.

When he came to California, irrigation development was in its primitive and pioneer stages. He began in those pregnant years when both practices and institutions were forming. He did not bring with him any traditions or experience that would aid in creating a new type of agriculture and in establishing communities of farmers unused to irrigation. He came to the arid West when the people of each of the arid States realized but dimly the future possibilities of the irrigated farm, and where capital and labor had both to be encouraged and combined. Only a man of superb confidence in his judgment and great personal influence could have succeeded, as he did, from the outset. Only a man of exceptional capacity could have recognized, as he did, the latent possibilities of a region dreary of aspect and wholly undeveloped. Only one who combined alike ability as an engineer and an economist could have planned canals and fashioned human institutions needed to secure the final desired result.

His ability to recognize latent possibilities is shown by the fact that the Ontario colony, the second he established in California, still retains, after a third of a century, its pre-eminence in irrigation as one of the areas where land has reached its highest price and the acre returns from irrigated crops their largest value.

When he began, there was no system under which a community of people working together could raise the money needed to build the works to irrigate their lands. Works that required more than could be done by individual effort, or the efforts of a few people working together, were built as corporate or capitalistic enterprises. The genius of Mr. George Chaffey and Mr. L. M. Holt perfected a system by which farmers could associate themselves in mutual water companies under a non-profit system, in such a way as to command the necessary funds to build their works and live and work together in accord in their subsequent operations. The plan they devised played a most important part in developing the agriculture and horticulture of the Southwest, and was the first form adopted in the Australian colonies at Mildura and Renmark.

Mr. Chaffey was the first in Western America to combine hydro-electric development with irrigation. A large part of the financial success of the Ontario colony and of the comfort and attractiveness of its homes was due to the ownership, by the people who live on the farms and irrigate its lands, of the hydro-electric power plant, which is a part of the system. Now all irrigation planners recognize that power is the best cash crop of an irrigation project, wherever its development is possible.

He was the first to recognize fully the necessity for conservation of water supplies by lining his irrigation works and building pipe lines to convey water under pressure ; and this confidence in the future and courage in carrying out his plans made his early projects types of those which were to come later. It was this thoroughness which caused the Ontario colony, the most important in many respects of his American achievements, to be selected by the United States Government as a model irrigation colony of America, and to be reproduced in miniature at the Louisiana Purchase Exposition at St. Louis, twenty years after it had been initiated. In its homes, in its agricultural methods, in the rewards it gives to industry and skill, in the fine agricultural school it supports, this colony is to-day a type of the best that rural life affords in any part of America.

The success of his enterprises in California led to his being invited to become a leader in irrigation development in Australia. The only reason that I can conceive for his withdrawing from a field of such broad opportunities is that it was a call to service in the great Empire under whose flag he was born. In Australia as in the United States he showed the same intuitive recognition of values by selecting as the field of his endeavor the section of Australia that in land and climate has possibilities in agriculture and horticulture unsurpassed in any other portion of the Australian continent.

Success in reclamation, however, requires more than success in production. There must be markets and social contacts with the outside world. The Chaffey colonies in Australia, when they were begun, lacked both. To secure the type of soil desired, Mr. Chaffey went one hundred and fifty miles beyond the end of the nearest railroad. They were located on a navigable river, but steamboat traffic was too slow, and too subject to interruption. Australia did not have, as did America, a great reservoir of agricultural people to draw on to occupy and develop its irrigated farms. The greater part of the early settlers in the Chaffey colonies came from Great Britain, and they found the contrast of life remote from cities with the life they had left too great to be endured. Many gave up before the possibilities of the colony had been tested.

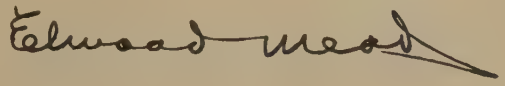
The grain growers of Australia regarded a twenty-acre orchard or vineyard as too small to be worthy of their attention. They held it a type of cultivation suited to the Chinese gardener, who lived and worked near their cities, but not an opportunity for their sons. That the soundness of George Chaffey's conception should have been questioned is not to be wondered at, and the immense expenditure looked upon with apprehension.

There was another reason for interruption of development in the Australian settlements. Mr. Chaffey thought and planned as an individual leader. He worked independently of Governments. He was never a framer of laws. He did not realize the importance of Government regulation and

control of water supplies, or the value of having organization based on carefully framed laws. His mutual water users' associations and methods of financing were those of private enterprise. The Australian policy is to make the State a partner of the individual in the development and use of natural resources. It was inevitable that the original organization of the Chaffey colonies should be looked upon with misgiving, and should later become irrigation trusts under Government laws.

The interruptions in the Australian development caused Mr. Chaffey to return to America and begin life anew, but the colonies he established in Australia showed the great horticultural possibilities of the continent, and, in their small farms cultivated by their owners, they represent the type of farm life and rural organization destined to dominate the irrigated areas of that continent.

His accomplishments after his return to California surpassed in magnitude those he had undertaken in his earlier years, but they are not so interesting as the trails he blazed in Ontario and Riverside. What he achieved in Imperial Valley and Whittier had best be told by his biographer. They showed anew his ability to organize communities so that the people in them could work together to accomplish the desired results. He probably came nearer than any other single individual in being able to adapt himself to the conditions of the time in which he lived, and to prepare the way for the larger undertakings and costlier developments which require Governmental aid. What he accomplished made Federal reclamation in America and Government irrigation and settlement in Australia not only possible but inevitable.



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CHAPTER I

THE SECOND GOLDEN AGE OF CALIFORNIA

CONDITIONS in the two Golden States of the New World which will ever bear the imprint of George Chaffey's genius, were very similar in 1880. To-day, with its greater population and productive area, and a home market of well over 100,000,000 people, California has far outstripped Victoria.

But in 1880 in both States the Age of Gold was passing, and a new Golden Age was dawning. The fierce fever of the gold digging days had subsided, and a reaction against the barbarism of mining camps had arisen. Thinking people in Victoria, as well as in California, were realizing that gold mining, with its arbitrary rewards—superfluous wealth for the few and hardship and disillusionment for the many—was but a transitory stage in the development of the State. They saw that prosperity to be real and lasting must be based on industries less capricious and more civilizing.

The climates of both States were similar, ranging from temperate to sub-tropical, and each possessed semi-arid lands representing a substantial proportion of the total area. The percentage of arid land was much higher in California, but this was counterbalanced by an immeasurably greater potential water supply, the permanence of which was ensured by mountain systems far exceeding in elevation those in any part of Australia.

Irrigation was essential to the full development of Victoria and California. But whereas in Parliament House, Melbourne, old Hugh McColl the Prophet, and that brilliant young journalist, Alfred Deakin, the Precursor of Irrigation, were yet but voices crying in the wilderness, California had already achieved successes in the art of applying water. These successes guaranteed its future as a Golden State.

The founders of Riverside, Anaheim, and Fresno, drawing inspiration from the miracles wrought by the Mormons in Utah, and by the Greeley-ites in Colorado, had forced a sceptical

people to believe against their will in the productive capacity of a soil most unattractive and uninviting when unwatered. Unlike Victoria, California had crossed the first hurdle—popular incredulity. Lands so long despised by Spanish families wrapt up in a sleepy Mission past, were beginning to blossom and fructify. Sage-brush and mesquite, covering what are now some of the most fertile valleys in America, were being driven back towards the foothills. The Anglo-Saxon intruders were just beginning dimly to realize the vastness of the prize that lay within their grasp, and the languid descendants of the Conquistadores were being dispossessed. The process was soon complete, and now all that remains of California's picturesque Spanish past is its melodious nomenclature, and the venerable ruins of the Franciscan Missions marking the Way of the Cross along the Coast from San Diego to San Francisco.

In Southern California at this period, appeared a young Canadian engineer named George Chaffey, a man of destiny marked out to be foremost in the grand struggle of progress against stagnation. Captivated in 1880 by the romance of irrigation, his imagination soared far beyond the present he saw around him, and he foresaw something of the future development of Los Angeles, perhaps the greatest wonder of the present century. Then Los Angeles was a Mexican town of twelve thousand people; in 1902 it had a population of 103,000; to-day its second million is in sight. It is but fitting that George Chaffey should have been benefited by this phenomenal growth, because he was one of the chosen few who foresaw that water applied to the purple slopes of the uplands of Southern California would produce wealth undreamed of by that generation. He was one of the first to realize fully how admirably the topography of Southern California lent itself to irrigation. To most of his contemporaries George Chaffey's visions seemed fantastic, but he was not to be shaken by scepticism. He saw clearly that the Golden Age of California was beginning, not ending. He was an explorer seeking, and ultimately finding, a golden reward in mountain rills or in the silent percolation of slow-running underground streams.* Where Spanish folk had seen only dry river bed or water

* There is literal truth in the old Spanish proverb, which says: "The rivers of California run bottom upward."

LOS ANGELES AND ENVIRONS,
showing location of Ontario, the famous Irrigation Colony founded by George Chaffey in 1882.

course, he discovered great volumes of water flowing stealthily underneath as if to escape the searing kiss of the sun. Seeing around him that irrigation was making civilization blossom where barbarism had so long blighted the land, it was not surprising that George Chaffey became infected with the social ideals of the irrigationists, for irrigation is as much a social as a productive process.

Riverside, which lies on the east bank of the Santa Ana River, about eighty miles from Los Angeles, was fifty years ago a striking example of the socializing power of irrigation. Even Australians with their high standards of living cannot realize the social progress of Riverside until they have seen for themselves its charming homes, owned by small farmers, working ten to forty acre irrigated orchards, and have drunk in the shaded beauty of Victoria and Magnolia Avenues. One must see Riverside to credit its incredibly high standard of comfort for all. There are no mean streets, no shabby homes, no ill-nourished children in this community.

So, in the Riverside of 1880, crude as it was by comparison with the city beautiful of to-day, George Chaffey saw around him ample evidence that irrigation, a process involving intense settlement, solved one of the greatest problems of rural life. It satisfied social instincts by eliminating isolation, the curse of existence in a great sparsely settled country like Australia. A few years later he was to show Australia a way of overcoming this obstacle to her development. In Riverside he saw a true democracy—not socialistic, on the contrary intensely individualistic,—a community based on industry and self-reliance, where labor was never servile, a centre from which the stark ugliness of dilapidated farm house and tumble-down barn was banished. He saw in operation a system which made land monopoly impossible, a society which sought to raise all rather than to drag down those who had risen. W. E. Smythe, in his *Conquest of Arid America* (Macmillan and Company, New York, 1905), admirably puts it :—

" The men of the Southern Valleys made the small farm unit supreme. With marvellous patience and intelligence they worked out the highest methods of watering and tilling the soil known to the world. Tempering their speculative instincts with love of home, they developed surroundings of rare beauty and comfort, and made them centres of a high social and intellectual life."

George Chaffey, in 1880 saw the Riverside lands, regarded by former owners as low-grade sheep pastures, being transformed by water into closely-settled areas of astonishing fertility. He saw them enclosing a city which, even in those days, was a marvel of co-operative achievement. That such results could be obtained from such unpromising material inspired him with the theory later formulated by Professor E. W. Hilgard, Director of Agriculture at the University of California, that fertility is a quality inherent in aridity. George Chaffey afterwards found that the Mallee Desert of Victoria and the Colorado Desert of California and Baja California, are not deserts at all. His experience gives hope that the so-called "Dead Heart" of central Australia is not dead, but hibernating, awaiting the awakening touch of water.

It meant much for the arid lands of two hemispheres that the ambitious young engineer became carried away by the possibilities of irrigation in Southern California. Smythe admirably expresses what was in his mind :—

"Aridity is a guarantee against loss by flood and irrigation, a guarantee against loss by drought. The supreme advantage of irrigation consists not more in the fact that it assures moisture regardless of weather, than in the fact that it makes possible the application of moisture just when and where it is needed."

The young Canadian realized, too, that the vast and ever-expanding home market of the Eastern States was the guarantee of a demand for the farm products of the Golden West. Obsessed by the future of irrigation as a prime factor in the development of the Southland, and foreseeing fame and fortune for himself, he threw himself heart and soul into the new colonizing movement.

It was fortunate for California that the irrigation era was preceded by a period of active railroad construction. Had it not been for this circumstance the expansion which followed the advent of the great Southern Pacific and Santa Fe systems must have been indefinitely delayed. In Australia, unfortunately for its progress, the process was reversed. Settlement in nearly every case preceded the railways. This condition arose from a fundamental difference in the social outlook of the two countries.

The years following the American Civil War saw the rise of that dominant individualism, which, bringing with it the

greatest economic development known to mankind, has remained the strongest characteristic of the United States. Australia in the last quarter of the nineteenth century was already showing signs of developing an exactly opposite social outlook. The ideal of State control was taking root, and the converse view that individuality when it took the form of doing things on a large scale was an evil to be shunned was rapidly gaining ascendancy. The growth of a peculiarly Australian form of State socialism became accelerated in later years. The tendency in Australia ever since the rise of the State control theory has been to discourage large-scale individual effort. Strangely enough, co-operation has never flourished there as in America and other strongly individualistic countries.

So even in the eighties in Australia, long before the birth of labor politics in their present-day form, any person who seemed likely to amass wealth in a great developmental enterprise was looked on with suspicion by a large section of the people. With a few minor exceptions, no Government dared to make a grant of land for railway construction, and the private lines built in the earliest days of the railway era were soon taken over by the State. Hence it is that Australia lost the chance last century of a Trans-Continental railroad like the Canadian Pacific, which has proved such an inestimable boon to the sister Dominion. Canada has long had its trans-continental system. Australia may be said to have one—if a line involving a constant process of changing trains can be called a continuous railway. But the North-South connection, held by many Australians to be vital to the development of the North, and to the defence of the Commonwealth, is still far from completion, though it could have been constructed before the close of last century had private enterprise been permitted to undertake the work.

State control of railways in Australia, which precluded the adoption of a uniform gauge, has prevented the growth of a truly continental system, and has resulted in a chaotic series of gauge breaks, bringing confusion, loss and delay in its train. It has prevented many Australians from thinking in terms of a continent. The general policy of the Australian States has been that settlement must precede railways, but in many large areas in the interior, settlement is impossible until the railway comes.

Under the private ownership system, America has laid down some 300,000 miles of railroads without a break of gauge, and California, when George Chaffey first saw it, though thousands of miles from the great centres of population, was already supplied with railroads to convey to the markets of the East the products of irrigation. Making all allowances for widely divergent conditions it seems that Australia has paid perhaps a prohibitive price for State control of railways, and must still find many millions to overcome a calamitous break of gauge condition.

The policy of building railroads in advance of settlement had already been vindicated in Southern California when George Chaffey arrived from Canada, although it must be conceded that the connection with a great home market made the proposition more feasible than would have been the case in Australia. Even so, private enterprise would have built lines to open up the Australian interior if given the chance. The working of the two policies is well illustrated by the experience of George Chaffey. When he and his brother William Benjamin established the two Southern California irrigation colonies of Etiwanda and Ontario, they found the Southern Pacific Railroad operating in the district, although there was no settlement in either of these particular localities. Mildura, Australia's first irrigation settlement, was founded by George Chaffey in 1887, and it was not till 1903 that the railway came. Chaffey Brothers Limited had from the beginning offered to organize a company to build a line on the land grant principle, but the State ownership fetish, and the peculiarly Australian distrust of anyone seeking to enrich himself in great developmental enterprises, proved insuperable obstacles. So Mildura had to wait fifteen years for its railroad, and, in the meantime the project was made the shuttlecock of parish pump politics.*

* "Before I left office (in the State Government of Victoria), I was in treaty with the Chaffeys to obtain from them a proposal to construct a railway to Mildura," said Alfred Deakin, giving evidence before the Mildura Commission of 1896. "At that time they were anxious to undertake the making of a line, but the difficulty was they wanted the American plan of a big land grant and a grant of money. They were told we could not look at that, but if they undertook to make a cheap railway, it might be possible to make a concession in rates to enable them to do so. They sounded the English market, I believe, to some extent, and they were trying to put the plan in shape when we left office."

Of course the American system was capable of great abuse. The railroad companies were often hard taskmasters, imposing their will on town and country in those days and levying heavy tribute upon the farmers, but they did build thousands of miles of uniform gauge lines in return for land valueless without the railway. They found the money, and for every dollar they made the community was enriched by thousands. In return for a gift of unused public lands, the taxpayers were relieved of all responsibility for capital, interest or loss on operating expenses. In Victoria, on the contrary, nearly £70,000,000 of borrowed money have been spent on railways operated at a loss for which the taxpayer is responsible. This vast capital pays no taxation. The American railroad companies pay taxes aggregating 1,000,000 dollars a day.

The Southern Pacific lines bringing home-seekers from the East undoubtedly made possible the rapid development of irrigation, which may be said to have begun in the early eighties, and ensured the success of the ambitious plans which George Chaffey formed soon after coming to Riverside. His younger brother, William Benjamin, who had come to Riverside a few years earlier, had taken up the business and production side of irrigation. His knowledge of land and cultivation would be of great value to a man contemplating colonization on a large scale. The engineer would find the water, bring it to a selected tract of land, lay out a colony and plan in advance its distinctive social features. The business man would manage the selling organization and advise settlers regarding their choice of land and products.

Thinking the future over on these lines for some time, George Chaffey finally suggested to his brother that they should form a partnership—they had little capital beyond their own brains, initiative and daring—and create an irrigation colony of their own. George Chaffey had the mechanical mind and training, the driving force and powers of leadership and the penetrating vision of the combination. The younger brother was the horticultural and soil expert and the supervisor of works. He had considerable skill in drawing up business documents, and was a past master in personal negotiations. He possessed a personality which drew people to him, and he was most popular both in the Californian and Australian settlements.

No less an enthusiast than George, with unbounded faith in the future, W. B. Chaffey eagerly accepted the proposal. Thus was begun in 1881 an association which left its mark on California, Victoria and South Australia before it was finally broken on the red banks of the Murray in 1896. But the severance of this partnership, which changed the history of Victoria's arid lands, did not mark the end of the career of these remarkable brothers. Each went his own way, the younger becoming a unique and privileged figure in Victorian provincial life, the elder marching from triumph to triumph, his life's work crowned by an almost quixotic enterprise which gained for California the vast province once a sterile desert but now the Imperial Valley, the Winter Garden of America.

In the next two chapters we shall learn something of the family background of this amazing young Canadian engineer, who came to Riverside on a holiday visit in 1880 and, greatly to his own surprise, found himself precipitated into the thick of the fight which resulted in the conquest of arid California.

CHAPTER II

THE CHAFFEY TRADITION

NOSCE TE IPSUM, the family motto of the Canadian Chaffeys, found its highest expression in George Chaffey, founder of Mildura and Renmark, and Conqueror of the Colorado Desert. For George Chaffey, Lover of Men and Dreamer of Dreams, was endowed by his forefathers with an insistent desire for self-realization. This gave driving power to the genius that made him a constructive force in two hemispheres.

The desire for self-expression which manifested itself from early childhood in his unshakeable decision to work out his own destiny enabled him to overcome difficulties that would have broken an ordinary man; to ride triumphantly over disaster; to acquire without the aid of university training a technique which won him international recognition as one of the master irrigation engineers of the age. It made him, for most of his life, a wanderer over some of the most uninviting areas of two continents, shunning the easy path and fighting Nature in the regions of sun and drought. It inspired him with courage, optimism, and patience. As will be seen later, he needed all these qualities in a heroic degree to accomplish his life's work.

George Chaffey inherited to the full the Chaffey tradition of self-knowledge which his grandfather Benjamin brought over the Atlantic from smiling Stoke-sub-Hamdon in the County of Somerset early last century, and successfully transplanted on the bleak shores of Lake Ontario, Canada.

The Chaffey tradition had left its stamp on English life centuries before the New World had heard of George Chaffey, creator of a new colonization system, the man who brought scientific irrigation to Australia. In the course of ages, the spelling of the name varied, but the pronunciation remained unaltered. The name is pronounced to-day as it was spelt in mediaeval times—Chafy. The family is so ancient that its

origin is lost in obscurity. It certainly sprang from ancestors seated at Chafecombe in Somersetshire probably in pre-Norman times. They appear to have migrated from there to other parts of the county and to Devon in Plantagenet times. till. in the reign of Henry VIII. three lines began to perpetuate themselves: the eldest at Sherbourne in Dorset. the second (from which the Canadian Chaffeys descended) at Stoke-sub-Hamdon*; and the third at Exeter—this line became extinct with the death of Molyna Chafe *circa* 1685.†

The Chafecombe Chafys claim descent from one Hugo Chafe-combe. whose grandson. the Domesday Book shows. held the township of Chafecombe from the Bishop of Coutances in the Conqueror's day for an assessment of three and a half hides. This condition under William would be accepted as a conclusive proof of Norman descent. but there is evidence that the family flourished in the South Country before the coming of the Normans. Collinson. in his *History of Somersetshire*. says that the name is Saxon and means "winding." so that Chafecombe would mean "the winding Valley."

The records show that the family was distinguished by pride of race and love of knowledge. Perhaps the most distinguished of the learned Chafys was Rev. Wm. Chafy. D.D.. of the Dorset line. born late in the eighteenth century. who became Master of Sidney Sussex College. Cambridge. Vice-Chancellor of the University in 1813 and 1829. and Chaplain in ordinary successively to George III. George IV. William IV and Victoria.

Thus Benjamin Chaffey. of the Stoke-sub-Hamdon line. grandfather of George Chaffey the engineer. brought with him to Canada in 1812 nearly a thousand years of family tradition. One of the ancient families of England. the Chaffeys had never

* In view of the strong inclination towards building and engineering exhibited by the Canadian Chaffeys, it is interesting to find that this branch of the family owned for generations a notable stone quarry on Ham Hill, overlooking Stoke-sub-Hamdon and Norton. This hill is still marked with the remains of fortifications erected by the Romans.

† Burke's *Landed Gentry* draws attention to the Chafe Monument in the Parish of St. Giles-in-the-Wood, near Great Torrington. This is a recumbent figure of Thomas Chafe of Doddiscott. It bears an inscription in Latin: "In grateful memory of the noble Thomas Chafe of the very ancient family of Chafecombe in the County of Somerset . . . a Master of Arts, a man of valor and unusual genius, who, having lived steadfastly in the Apostolic Faith, departed this life in the year of deliverance 1648." This Thomas Chafe belonged to the extinct Exeter line.

been of nor allied with the courtier classes. They apparently held aloof from the great political and religious struggles which convulsed their country, and were left little changed by the overthrow of religious systems and dynasties. It was a family which prided itself on its sturdy patriotism springing from a love of the soil of England. Quiet prosperity and unpretentious gentility were its uninterrupted lot for successive generations.

With the exception of an occasional beneficed clergyman or Fellow of a University College, the Chaffey men were essentially men of practical talents, able to do things for themselves in field, farm, or orchard, counting-house or mart, and able to do them well. They were pious, sober-living people, without the truculent righteousness of political Puritanism; with all the talents which made them leading men among the smaller landed gentry, unattracted by the splendors of court or palace; not too fond, nor yet disdainful of the material good things of life. They aspired to success without seeking the sensational. When genius is found in such families it is seldom erratic or flamboyant, but all the more effective for being allied with sober qualities handed down by centuries of good-living and God-fearing ancestors. So the genius of George Chaffey was tempered by the sound commonsense attitude towards life which was his natural heritage. He inherited, too, the building spirit and roving propensities of his ancestor, Thomas Chaffey, "Master Mason to his Majesty" at Portsmouth and Jamaica, who died in 1768.

Benjamin Chaffey senior was a notable pioneer of the great Canadian Province of Ontario. He was the peer as well as the contemporary of the sturdy provincial Englishmen, who, undaunted by the hardships of Canadian backwoods life in the early days of last century, laid the foundations of the great prosperity which Ontario at present enjoys. He was one of those who made the rich Province of to-day one of the supreme triumphs of British pioneering genius. He was born on November 13, 1779, at Norton, near Stoke-sub-Hamdon, and at Winsham, on September 20, 1804, he married into a notable family by taking to wife, Frances Elswood, daughter of a beneficed clergyman.*

* Her mother was a Miss Frances Allen, niece of the great Dr. John Allen, whom W. H. Blanch, in his *History of the Parish of Camberwell* (E. W. Allen,

At Stoke-sub-Hamdon, Chard, and Somerton, in Somerset, Benjamin Chaffey had carried on, with his father Benjamin and his brothers, the business of wool staplers and manufacturers of woollens. The protracted wars of the Napoleonic era, bringing prolonged trade depression in their train, caused Benjamin Chaffey, who was a man of much initiative, to turn his thoughts to Canada, the possibilities of which Englishmen of the unofficial classes were just beginning to realize. Advised to the contrary by members of the family who lacked his imagination and adventurous spirit, Benjamin Chaffey finally decided to seek in the New World the opportunities denied him in his ancestral village. At the close of the American War of 1812, he emigrated with his wife and young family to Canada, and finally settled at Brockville, newly named after Major-General Sir Isaac Brock, one of the heroes of the late war.

Benjamin Chaffey quickly made good his footing in the new country.* He landed in Canada possessed of means which, though not large, enabled him speedily to become a person of some consequence among his fellow colonists. His delicately-nurtured young wife bore her exile with resignation, and devoted herself to raising a family which should demonstrate that the overseas stock could survive severance from the ancestral stem. In this she succeeded beyond her fondest hopes. Her children took root and flourished in Canadian soil. One son, Benjamin, born at Norton, Somerset, became one of the most notable Canadian engineer-contractors of his day. The other children, too, did well in Canada, but we are principally interested in Benjamin junior, because it was he who fired his brother George's eldest child with the ambition to become an engineer "like Uncle Ben."

1877), describes as the most celebrated Master of Dulwich College, an ancient scholastic foundation of London. Dr. Allen was Assistant Secretary to the 1806 Commission for arranging terms with America, and one of the greatest literary figures of his age. He was for many years an inmate of Holland House, the guide, philosopher and friend of its head, the daily associate of the celebrities who foregathered there and made Lord Holland's home a great intellectual centre. Byron speaks of Allen as "the best informed and one of the ablest men I know."

* Samuel Chaffey, a brother, also emigrated to Canada about this time, and Chaffey Locks, between Opinican and Indian Lakes, are named after him. He operated lumber mills and a distillery at this point before the Locks were built. He died there in 1827, and his widow, nee Mary Anne Poole, of Somerset, and son, Samuel Benjamin, carried on the mills. There are several descendants of this branch of the family in Wisconsin.

When Benjamin Chaffey senior arrived in Canada with his wife, three sons and two daughters, he had obtained an Imperial grant to land near Perth, on which he first settled. This grant was, however, cancelled by Canadian officials. Smarting under a natural sense of injustice, Benjamin Chaffey crossed the border into New York State and resided at Buffalo for some little time. He returned to Canada, preferring life under the British flag, and finally settled at Brockville until his death on August 6, 1832. He died of typhus contracted from Irish immigrants, who were flocking to the St. Lawrence at this period. He is said to have caught the disease while ministering to the sufferers, there having been a great scarcity of qualified physicians to deal with the epidemic.

His distinguished son, Benjamin Chaffey junior, first became known for skill as a builder and contractor. Success soon caused him to launch into large enterprises. The first of these was a contract for repairing the fort and magazines at Kingston. Then he completed a section of the Beauharnais Canal, and with William Elliot, built the section of the Grand Trunk railway in the County of Dundas.

But Benjamin Chaffey's fame as an engineer rests on his connection with the great Victoria Bridge across the St. Lawrence, at Montreal, the construction of which was begun in 1854. He first obtained a contract for a portion of the masonry and coffer dams. On arrival at the scene, he discovered that the machinery which had been brought from England for work on the bridge was unsuitable for the undertaking. He thereupon set to work to solve the problem in his own way, and built the Chaffey travelling crane, the first of its kind ever used, and the Chaffey derrick, two new mechanical appliances which enabled him to complete his contract so successfully that he was given other sections to complete.*

Benjamin Chaffey finally constructed about half the coffer dams, piers and tube staging of this wonderful structure, which was, when completed, the leviathan of bridges, easily the greatest and strongest of its kind then in existence. The great width of the St. Lawrence at Montreal, and the terrific pressure of the ice in winter raised construction problems which

* Vide *Life and Labors of Mr. Brassey*, by Sir Arthur Helps, K.C.B., Roberts Brothers, Boston, 1874.

fully taxed the best Scottish, English, and Canadian engineering skill of the age. These were finally overcome, and the bridge, 9144 feet long, thrown across the St. Lawrence at a cost of £1,500,000 is in use to-day, unshaken by the ice pressure of nearly three-quarters of a century, as beautiful as it was on December 17, 1857, the day on which the first train passed over it. The tubular decking which, it is said, was constructed to protect train passengers from the sight of the abyss over which they were passing, has been removed—people now-a-days accept the safety of these great engineering works without question. The bridge remains to-day another example of the greatness of the people who made Canada what it is.

The Chaffey travelling crane and the Chaffey derrick are spoken of as "invaluable" in the *Elephant Folio*, describing the Victoria Bridge by the chief engineer for the contractors, James Hodges (John Weale, London 1860). Chief Engineer Hodges sent the following letter to Benjamin Chaffey ten days after the passage of the first train over the bridge :

Victoria Bridge Works,

Montreal, December 27, 1859.

My Dear Sir,

At the conclusion of the great work upon which we have been so long engaged, I cannot leave the Province without expressing my thanks for the valuable assistance I have received from you during its construction. It is not often that so much talent is combined with such honesty of purpose and activity in business as you have invariably displayed in all your business transactions, and it is as a mark of my appreciation of this, and the great respect I have for your character, that I now write.

Believe me, I shall always look back upon our intercourse with pleasure that during a period of over five years has never been disturbed by a doubt in my mind of your intention to do what was right and just.

Wishing you every happiness this life can afford, and health to enjoy it,

I am, my dear Sir,

Yours very sincerely,

James Hodges.

Ben Chaffey, Esq.

The contractors for the Victoria Bridge were Sir S. Morton Peto, Bart., Thomas Brassey and Edward Lodd Betts. Thomas Brassey was the father of Lord Brassey, a former Governor of Victoria, whose name will appear later in a Mildura connection. The Chaffey inventions are fully described in Charles Legge's scarce book, *A Glance at the Victoria Bridge and the Men who Built it.* (John Lovell, Montreal, 1860).*

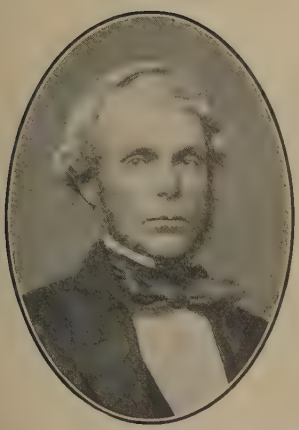
Chaffey township, in the Muskoka district, is named after Benjamin Chaffey. He died at Somerset, Brockville, on July 3, 1867. His wife, nee Jane Chisholm, survived him for twenty-six years.†

George, son of Benjamin Chaffey senior, father of the subject of this work, was the first member of the Chaffey family, for generations at all events, born on foreign soil. He first saw the light at Zanesville, Ohio, during a temporary residence of his parents in the United States. From the days of his youth he was associated with the Lake ship building and carrying trade, and occasionally engaged in business enterprise with his brothers, Benjamin and John. He married Anne Leggo, daughter of Christopher Leggo, a member of an old Cornish family which gained eminence in the legal profession in Canada. Their first-born was named George. Anne Leggo's mother was a Miss Ayton, descended from an Essex family. Her brother, a ship's captain, sailed the South Seas in the very early days of British colonization in New Holland.

George Chaffey and Anne Leggo had five children : George, Elswood, William Benjamin (born at Brockville on October 21, 1856), Charles Francis, and Emma. Two of George's brothers and his sister were closely associated with the Australian irrigation colonies, and their names, especially that of W. B. Chaffey, are part of the history of Mildura and Renmark. Elswood passed out of his brother's life when George went to Australia, and his name will reappear incidentally only in these pages. He received the degree of M.D. from Queen's University, Kingston, Ontario, in 1871, and after post-graduate studies at Edinburgh obtained the degree of L.R.C.P. and S.

* The author describes the Chaffey derrick and steam traveller as " two of the most remarkable and successful applications of power during the entire progress of the work."

† Jane Chisholm was a daughter of Lewis Chisholm, captain in the First Regiment of Glengarry Militia, and a granddaughter of Donald Chisholm, who came to Glengarry, Ontario, in 1776, from Blairie, Inverness-shire.



(*Top*) BENJAMIN CHAFFEY, grandfather of George Chaffey, the founder of Ontario and Mildura.
(*From a silhouette taken from life.*)

(*Lower left*) BENJAMIN CHAFFEY, engineer and joint builder of the Victoria Bridge, Montreal.

(*Lower right*) GEORGE CHAFFEY, senior.

He practised in Ontario, the second Californian colony founded by his brothers, and at Santa Monica, a seaside resort near Los Angeles, but spent the greater part of his professional life in Mexico. He has earned a reference in Australian history because he was one of those who met Alfred Deakin in the course of the brilliant young Victorian Parliamentarian's memorable visit to Ontario in 1885, as Chairman of the Royal Commission on Irrigation.

CHAPTER III

THE UNIVERSITY OF HARD KNOCKS

GEORGE CHAFFEY, the future master irrigationist, was born at Brockville, on January 28, 1848. The father, a keen man of affairs interested in the lumber business, saw exceptional opportunities at Kingston. Even at that remote date the Lakeside trade was assuming importance, and there were evidences that Canada was destined to become the granary of the Mother Country. So he took his young wife and family to Kingston, and, in partnership with one of his brothers engaged in the transport of wheat to Montreal.

Before many years the firm was building its own ships and tugs. It carried vast quantities of iron ore from the Ontario mines to Cleveland, Ohio, for the celebrated Mark Hanna, a kind of American King-maker, who made William McKinley President, and virtually controlled National Republican politics in the U.S.A. for a generation. Whenever Mark Hanna visited Kingston he always stayed at the home of George Chaffey senior. His grandsons, Andrew and Ben, eldest sons of George junior, have often sat on the knees of the man who was at that time dictating the policy of the United States, and received gifts of trade dollars from him.

George Chaffey's youth was spent at Kingston. The child's delicate frame gave little promise to the long and strenuous life which lay before him. So precarious did his health become that he was taken from the Kingston Grammar School at the age of thirteen. This would have doomed to mediocrity most children, but young George possessed the rare talent for absorbing book learning outside school. His engineering knowledge was entirely self-acquired. In later years it received the hall-mark of the British Institution of Mechanical Engineers, which during his visit to London in 1894 paid him the compliment of electing him M.I. Mech. E.

This was the highest honor it could confer upon him. George Chaffey gained in health by freedom from the confinement of school, and, as events proved, lost nothing that would have been of use to him in his vocation. He read text-books when other boys were reading books of adventure, and he found Euclid infinitely more interesting than Robinson Crusoe. He was really an omnivorous reader—of books about mechanical devices. He had the fixed idea of becoming an engineer like his famous uncle. He was a Happy Warrior who *wrought upon the plan that pleased his boyish thought.*

Seeking a short cut to his objective as was his wont, he thought the quickest way to it was to make contact as quickly as possible with the machinery in his father's yards and lake steamers. This would indeed have been fatal to his hopes had he not been gifted with a love of the theoretical side of his chosen career and with a capacity for mastering its technicalities. He loved to pore over drawings and blue prints, and took delight in geometrical problems. So pronounced became his interest in ships' engine-rooms, that it seemed he would develop inevitably into a marine engineer. All the activities of his early manhood confirmed this. It was not till he had become noted at all the Lake ports for designing clipping Lake and River steamers, unrivalled in their day for speed, that an unexpected turn of events turned his thoughts into quite a different channel, with happy results for California and Australia.

It has been said that George Chaffey had a supreme capacity for self-expression. This took the form of action. He lacked ability to translate himself into public speech. Throughout the great controversies of later years when enemies were demanding his head, he had no words for them. He was inarticulate. A visionary endowed with power to make his visions materialize, he went on with his job of work. At Mildura, in the face of a long-sustained campaign designed to ruin him, a campaign which snowball-like gathered size and momentum as it proceeded, he pursued unswervingly the course he had marked out for himself, rarely appearing in public, disdaining, with one or two notable exceptions, to express himself in words, and then, in a single phrase appearing to register defiance when he meant conciliation.

This did not arise from brusqueness or boorishness, for George Chaffey, boy and man, was essentially a being of gentle

and generous instincts. His nature was gentle. He loved man and bird and beast, and would suffer himself rather than knowingly inflict the slightest pain, but his sensitiveness and singleminded interest in his work led him to another extreme. In times of crisis he was silent when others were shouting, and naturally he gave the impression of having nothing to say. This characteristic, at the same time a source of strength and weakness, manifested itself in boyhood. His ambition and powers of concentration made him a child apart, but this happily did not, as so often is the case, crystallize into aloofness.

As a child his disposition made him a general favorite, and the shy boy grew up the most lovable of men. His quiet smile radiating good nature and good humor won him friends everywhere he went in every walk of life. On informal occasions he could converse brilliantly when he permitted himself to be drawn out, and old hands in Californian and Australian irrigation colonies recall with a chuckle how he could hold spellbound the camp fire circle. A Nestor-like counsellor, when his help was sought, he took advice from no one, but pursued his own course unswervingly. His attitude towards his work was like that of the Czar who, impatient at the delay in deciding on a route for the railroad between St. Petersburg and Moscow, is said to have called his engineers together and marked out the route for them by drawing on a map a straight line connecting the two cities, ordering them to build the line thus ! So George Chaffey would never choose the longer way to his objective for the sake of avoiding obstacles. Rejoicing in overcoming difficulties, he was always on the watch for the short cut. It was only a man of this type who could have, in little more than a year, and at a tenth of the estimated cost, constructed the great canal from the Colorado River which, in a flash, as it were, converted the Colorado Desert into the Imperial Valley, the most productive region in the two Americas.

Few men have been thrown by circumstances amid a more heterogeneous medley of human types. He was equally at home in the offices of London or Los Angeles bankers, or amid the untidy confusion of new settlements on sage-brush uplands of California or on the sun-burned plains of the Victorian Mallee. In Mexican canal construction camps or Victorian station homes, in the engine-room of a River Murray "Dread-

nought," or in Melbourne vice-regal, official and club circles, he made himself felt without appearing or indeed wishing to do so. In all circumstances he was a liberal employer, a loyal friend, a generous opponent. In the course of his ten years' stay in Australia he made life-long friends in every walk of life. It is just on thirty years since George Chaffey left Melbourne seemingly a broken man, but there are numbers to-day in all parts of Australia who treasure their contact with George Chaffey as one of the precious memories of the past.

GEORGE CHAFFEY, aged about sixteen.

Young George found in his father's workshops men who were anxious to teach him all that could be learned there. In office hours he was a kind of assistant draughtsman, and his spare time he spent in poky engine-rooms, in the fitting shops or in his study, a table in a corner of his room covered with a strange litter of blue prints, battered text-books and discarded or 'dismembered instruments.

Several years passed in this manner, till, when still in his teens, he became an amalgam of assistant-captain, engineer and purser on one of his father's freight boats. Long before he was twenty he held a master's and engineer's ticket. It is related of him that at the age of thirteen, during the temporary absence of his father, to avoid delay, he took one of the firm's tugs to a ship which needed its services and brought both safely to port. The employees and everyone connected with the business, except George Chaffey senior, thought this the most natural thing in the world. Even at such an early age the boy's precocious seamanship and leadership excited wonder.

While still in his teens, George thought it was high time he sat for an engineer's certificate. There was a serious obstacle; he

was far too young. The Canadian authorities would not entertain his application for years to come. But at that time, at any rate, the States were not so particular. So George crossed Lake Ontario and returned triumphantly in a few days, a full-blown ship's engineer. He was then given command of one of his father's tugs, and later became master of a freighter trading between Chicago and Montreal.

At this stage of his life the adventurous spirit which dominated his career began fully to reveal itself, and almost involved him in the American Civil War. As he puts it himself, he wanted to gain experience in the University of Hard Knocks, so he joined as second mate the ship *Merrett*, trading between Kingston and Halifax. The *Merrett* was loaded with horses intended as remounts for the Confederate Army. These were transferred at Halifax to a blockade runner. George Chaffey conceived the idea of shipping with the privateer, but his father, well knowing his son, had a foreboding that this might happen, and, paying a surprise visit to the eastern seaboard, laid violent hands on the young filibuster and brought him back to Kingston.

This was an unsettled period of George Chaffey's life. Unconsciously he was chafing against the lot that seemed to have marked him out for a seafaring career. Although all his interests lay, and all his tastes seemed to lie, on the Great Lakes, he was marked out for far bigger things, but this was not to be for some years to come. Yet a wider field of activity kept ever opening before him. At this time his inventive mind created a new form of propeller which increased speed without additional fuel consumption. This was fitted to many Lake and Ocean steamers, including one which played an historic part in the American Civil War. It was a notable feat for a boy of seventeen.

In his twentieth year he unexpectedly conformed to his father's view that he should obtain some business experience in Toronto, so he entered the insurance office of his uncle Elswood, who was Canadian agent for the Etna Fire and Life Company. He remained there for two years, until his uncle's death, and returned to Kingston with a sound knowledge of office methods —and with a wife.

At Toronto George Chaffey encountered the greatest personal good fortune of his life. Among the family circles to

which he had entree was that of Andrew Taylor McCord, who had been a merchant in Toronto when the great industrial city in which present-day Canadians take so much pride was scornfully referred to as "Little Muddy York." Upon the incorporation of the city, McCord had become City Chamberlain, a post akin to that of Treasurer in Australian town halls. He held that appointment for over forty years, until his death in 1881. His signature appears on the paper currency, now a historical relic, issued by Toronto in its civic infancy. Andrew McCord was thus a man of much consequence at Toronto. A native of Belfast, he was a typical Northern Irishman. He had married Charlotte Taylor, a daughter of a prominent Dublin family, after the McCords and the Taylors had settled in Canada. He was born on July 12, and Charlotte Taylor was born on March 17, so there was a distinctly Irish flavor about their union.* Their daughter, Annette, became Mrs. George Chaffey.

The course of true love ran smoothly for the young Kingston engineer, and his wooing was not protracted. He married Annette McCord on May 31, 1869, exactly seventeen years before he signed with the Victorian Government an agreement which won a new province for Australia. This gentle lady has her part in the history of the Chaffey irrigation colonies of Australia and California. She was an ideal mate for George Chaffey, possessing an astonishing capacity for adapting herself to new environments. She pioneered the Chaffey colonies with her husband, sharing the very real hardships, not the least of which was the fierce sun blazing down from brazen skies for months at a time. Mrs. Chaffey, with true wifely instinct, disdained to live comfortably at Los Angeles or Melbourne, leaving her husband to bear alone the heat and burden of the day. She insisted on sharing with him the hardships of the beginnings of Etiwanda, Ontario (California) and

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* An intimate account of the trials of the McCords and Taylors in Canadian pioneering days is contained in *Life in the Woods*, by John Cunningham Geikie (W. Isbister and Company, London, 1874), a distinguished English writer. He was a Church of England clergyman, who had married a sister of Charlotte Taylor. Returning to England after his Canadian struggles, he attained eminence with his *History of the English Reformation*, and *Life of Christ*, both standard books to-day. A close friend of Dean Farrar, he was a brother of W. B. Geikie, who remained in Canada to become one of the leading physicians and educationalists of his time, and a cousin of Sir Archibald Geikie the great geologist.

Mildura and Renmark (Australia), and her vivacious personality is a fragrant memory in each of these places. The midsummer conditions of Southern California and Northern Victoria can be extremely trying even in present days when every comfort and convenience are available. They must have seemed unbearable to a lady reared amid the snows of Ontario. In later years she went down with her husband into the Colorado Desert. Those who have felt the fierce rays of the sun refracted back from the tawny sands of the desert and the solitude and intense silence of that shadeless waste will recognize the heroic spirit of this true helpmate.

The union of George Chaffey and Annette McCord was uniformly happy. It was blessed by three sons: Andrew McCord, born on April 9, 1874, and Ben, born on September 24, 1877, at Kingston; and John Burton, born on September 12, 1883, at Los Angeles. Andrew Chaffey, founder and president of the California Bank, Los Angeles, and Ben, a successful and affluent Australian pastoralist and sportsman, are two of the most prominent and popular figures in their respective spheres. Both, owing to the untimely fate that befell Chaffey Brothers Limited, began life in Australia with nothing except their own brains, and are to-day men of affairs handling large business enterprises, intensely public-spirited and patriotic. Starting in two widely different spheres from the ground floor, each won notable success in a field of effort demanding rare qualities. They are two very different types, who have developed into different ways in different countries, a fact which emphasizes the international character of George Chaffey's career. Both came to Australia as boys with their father. Andrew returned to America and Ben elected to remain. The life of each is touched with inspiration drawn from their father's genius and with the romance of business, a sphere in which George Chaffey, though greater than either of them, could never have succeeded as they did. Lieut.-Col. J. B. Chaffey, the youngest son, too, has inherited the Chaffey gift for success. He is prominent in the business world of Los Angeles, and a Vice-President of the California Bank.*

* In 1916 the U.S. Congress passed its first National Defence Act worthy of the name, and J. B. Chaffey obtained a Commission as Captain in the Quartermaster Section of the Reserve Corps in March, 1917. In July he was called to active service, and assigned to duty as assistant to the Camp Quartermaster at Camp Fremont, California. Soon after he was made Constructing

On his return to Kingston immediately after his marriage, George Chaffey was taken into his father's business and at once began building ships. During this period he designed probably twenty passenger and freight ships for the Lake trade. The *Geneva*, launched in 1875, and the most notable of these, was then the fastest light draught ship in America, probably

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FACSIMILE OF AN ILLUSTRATION OF THE S.S. "GENEVA," which appeared with a descriptive article in the *Scientific American*, for October, 21, 1876.

in the world. So much interest did she arouse in the United States that *The Scientific American*, on October 21, 1876, published a full front page illustrated article describing her.

Quartermaster, and had active charge in the building of Camp Fremont, located on the historic grounds of Stanford University. This Camp, which contained 1700 buildings, cost about $5,000,000.

The successful carrying out of this work resulted in promotion to field rank in March, 1918, and a transfer to the Artillery School as Constructing Quartermaster at Fort Sill, Oklahoma, the instruction centre for all artillery officers of both regular and reserve services. Here Major Chaffey was engaged in the construction of buildings, roads, and water and sewer systems costing millions of dollars. He was discharged in July, 1919, and in 1923 was promoted to the rank of Lieut.-Colonel.

The *Geneva* was designed and built by George Chaffey under contract. The guaranteed speed, phenomenal for a Lake steamer in those days, was to be twelve knots an hour, and the designer was to receive a bonus of $1000 for each half-knot better an hour recorded on her trial trip. She made fourteen knots without difficulty.

Describing the *Geneva* in the article mentioned, *The Scientific American* gave the following dimensions :—Length over all 103 feet, beam 20 feet, draught forward 3 feet 6 inches, and aft 4 feet 4 inches. She had accommodation, in addition to cargo, for 300 passengers and 50 head of cattle. The high-pressure engine designed by George Chaffey was of the inverted single cylinder type. The *Geneva* consumed $1\frac{1}{2}$ tons of anthracite coal per 100 miles run. The propeller was a Chaffey wheel, 4 feet 4 inches in diameter. On her trial run the *Geneva* did 14.2 miles an hour. Afterwards she was able to maintain a speed of 15 miles an hour without difficulty, repeatedly defeating the fastest ships in the neighbourhood by more than two miles an hour.

Owing to extreme variations in depth of lakes and rivers, the Lake ships were required to have a very shallow draught, and the problem set builders was to secure buoyancy without unduly affecting cargo-carrying capacity, speed and appearance. George Chaffey excelled in solving these problems. His light draught ships, notably *The Geneva*, *The Sunbeam*, and *The Zinfandel*, were regarded as triumphs of this special branch of the shipbuilder's art. It was said of his steamers that they would float in a good heavy dew !

Long before he built *The Geneva*, George Chaffey had set up in business for himself. His first important venture was *The Zinfandel*, which he built at Kingston for the Ohio River trade. It was typical of him—for he never realized the necessity of seeing in advance possibilities of disconcerting financial contingencies—that he ran out of funds before the ship was completed. Unable to finish her at Kingston, and unwilling to admit by asking assistance that he had tackled a job too big for him, he set off in the almost naked hull on a kind of transcontinental Odyssey, combining publicity with pleasure. He took *The Zinfandel* through Lake Ontario to the Welland Canal, thence across Lake Erie to the Detroit River, through Lake Huron, the Straits of Mackinaw, and Lake Michigan to

Chicago, down the Chicago Canal along the Illinois River to the Mississippi, thence to Cairo at the Junction of the Mississippi and the Ohio, and up the Ohio to Cincinnati. Here he found a buyer, and the long inland cruise ended. *The Zinfandel* was finished and became engaged in the Ohio trade.

George Chaffey remained in Cincinnati for some few years, his wife and two young sons having gone to live with the McCord family at Toronto. They joined him in 1879, and took part in another characteristic episode. Under contract he had built *The Sunbeam*, which became the best-known steamship in that portion of the States. She traded for many years between Cincinnati and Evansville (Indiana). The builder had been

THE S.S. "SUNBEAM"

offered a tempting premium for a ship which would pass the fastest steamer on the river travelling at top speed. He determined to earn this. Mrs. Chaffey and the boys accompanied the proud builder on the great day of *The Sunbeam's* maiden run when the test was to be made. The news of a possible conqueror had reached the rival camp, and there was intense interest on the river. *The Sunbeam* waited for the rival to come down the river and, letting her pass, gave chase. The other steamer, heretofore undefeated, gradually drew away to the accompaniment of ironic cheers from the crowd grouped at the stern, and cries of "Give us a rope and we'll tow you." George smiled, went below, and *The Sunbeam* slowly began to gain. Mrs. Chaffey then discovered to her consternation that he had been fastening down the safety valve. The proud builder soon reappeared to see how *The Sunbeam* was

faring, and despite protests, went below and further increased the pressure. Finally *The Sunbeam* drew right away, and thereafter daily defeated her rival with ease. She was long regarded one of the fastest passenger and freight ships in the U.S.A. river trade.

In 1879 George Chaffey returned to Toronto to work for his brother-in-law, Andrew McCord, who was Manager for Canada of the London Guarantee and Accident Insurance Company. In his spare time he worked at home on plans of ships which he designed on commission. Late in 1879 he went to British Columbia, and was engineer on various boats on the Fraser River at the time that his uncle (Hon. A. N. Richards) was Lieut.-Governor of the Province.*

A year of this work saw the close of his Canadian Lake and River career. Momentous events occurring in California turned his thoughts from ships, and his desire to build them ceased at the age of thirty-three and did not return till forty years later. The wonders wrought by irrigation in arid and semi-arid America were being heard of in Canada, and scenting a great adventure, George Chaffey turned southwards towards the dusty mesas and boulder-strewn canyons of California.

"The University of Hard Knocks" had done George Chaffey much good. It fully developed his instinct of self-reliance and made a powerful man of him physically. He had developed into a young giant with a heavy beard, noticeable even in those days when beards were worn by young men. He was a man that one would glance at twice. That great beard of his later became well known in the haunts of Los Angeles and Melbourne business and club men. Full of the joy of living, and inspired by a consciousness of mental capacity, he was

* Two daughters of Benjamin Chaffey senior married two brothers, members of a family noted in Canadian history. Miss Susan Chaffey, born at Brockville, became the wife of the Hon. Stephen Richards, Q.C., who held the distinction of being Minister for Agriculture in the first Cabinet formed in the Province of Ontario. Mrs. Stephen Richards, who died aged 95, was one of the foremost figures in Toronto society many years before Confederation, and coming to Vancouver, B.C., in her 75th year, led for 20 years a life of really extraordinary activity and usefulness, which made her the admiration and despair of the younger generation. She was known throughout the Dominion as one of Canada's most distinguished gentlewomen. Her sister, Frances, married the Hon. A. N. Richards, Q.C., brother of Stephen and of Sir William B. Richards, the first Chief Justice of Canada. A. N. Richards was Lieutenant-Governor of British Columbia when his nephew, that adventurous young engineer, George Chaffey, was designing ships for the Fraser River trade and sailing them himself.

ready for anything that would give him a chance to show the stuff he was made of. He was ever seeking opportunities in a larger field of effort and achievement.

In 1878 George Chaffey senior had retired from active business and emigrated to California, bringing with him his sons, William Benjamin and Charles, and his only daughter, Emma. Dr. W. Jervis, brother-in-law of W. B. Chaffey, had, just before, settled at Riverside in Southern California, the most widely celebrated of the new irrigation colonies in Western America. He returned to Kingston with such glowing accounts of the climate and prospects that George Chaffey, seeking a milder retreat for his old age than the rigorous Canadian winters afforded, decided to make a new home there. The Chaffeys planted one of the first orange orchards in the Arlington District, and soon became actively identified with Riverside affairs. William Benjamin, especially, devoted himself to horticulture with ardor, and speedily won more than local recognition as an authority on fruit-growing.

His curiosity excited by the strange enthusiasm of his father and brother for a land so different from their beloved Canada, George Chaffey paid them a visit in the winter of 1880. He did not return. The young engineer succumbed immediately to the fascination of California. He saw the miracle of irrigation at work, and his imagination was fired at the possibilities of the new era just being inaugurated. He saw his life's work in a flash, as it were, and spontaneously renounced all thoughts of a career on the Lakes, though, loving Canada as he did, it was a severe wrench for him to snap the connection with his native Province. He resolved first of all to acquire a first-class knowledge of the engineering side of irrigation. So peculiarly fitted was he for this work, and so indefatigably did he devote himself to it, that he soon surpassed his contemporaries.

The Chaffeys were part of a miniature Canadian community at Riverside. Several other Kingston and Brockville citizens settled there at this period. The most notable of these was Matthew Gage, a young Kingston jeweller, who came to Riverside in the same year as George Chaffey junior. He first went into business at Riverside, but soon became interested in practical irrigation, though devoid of engineering training. He will be ever remembered in Riverside annals for having

solved the problem of bringing water to the higher levels around the city, where some of the finest citrus land in America is found. The Gage High Line Canal, which conveys artesian water from the north and east, is his monument. In the face of great obstacles Matthew Gage pushed through his pet project, which enriched the colony. From the Gage Canal millions of dollars have flowed into the pockets of Riverside people. It is remarkable that two young men from the small city of Kingston, one a mechanical engineer and the other a jeweller, should have come to California in the same year, each to exert such a marked influence upon irrigation development.

CHAPTER IV

ETIWANDA

THE Garcia Ranch, situated on the Cucamonga Plain, fourteen miles west of San Bernardino, beginning at the foot of the Sierra Madre Range and extending four miles down the plain, was the site of the first irrigation colony established by Chaffey Brothers. The younger brother was attracted by the quality of the land, which he found to be eminently suited for subdividing into small fruit farms. He foresaw that these would sell readily to home seekers from the East and from Canada, who were beginning to flock to California, drawn by the marvellous climate and unlimited supply of land. The soundness of his judgment was vindicated by the success which attended the first venture of Chaffey Brothers.

George Chaffey was attracted by the water supply flowing down three small neighboring canyons from the mountains, and by the water rights attached to the Garcia property. He perceived an opportunity for creating, by a small expenditure on water works, a new irrigation colony on land given over to cactus, sage brush and manzanita. The water right dated from 1867, when George Day, occupying land close against the foot of the mountains, watered it from the canyon which now bears his name, and filed* on all the waters passing down it. This water right was extended by successive filings by Day, Wm. B. Pierce and one Smith, till, in 1873, a right had been established by filing and use to the waters of Day's, Middle, and Young's Canyons. These rights and utilizations became consolidated and in part attached to what was later known as the Garcia Ranch.

Late in 1881 Chaffey Brothers decided on the great adventure, and on Thanksgiving Day, now a doubly historic

* Filing in United States official phraseology is the procedure involved in lodging an application with the Government, State or Federal, according to circumstances, for the use of water for irrigation or power. Where priority of claim is evident, the mere act of "filing" automatically established the right sought. The process of taking up any part of the Government domain, State or Federal, is also known as "filing."

date for the prosperous colonies located on the Cucamonga Plain, they made their way to the home of Capt. J. S. Garcia, one of the best-known and loved residents of the San Bernardino Valley. Capt. Garcia's home was romantically situated near the intersection of the old Santa Fe Trail and *El Camino Real*—the Spanish King's Highway of the Mission Era. There were, in those days, few homes along the old Mission road between Los Angeles and San Bernardino to relieve the monotony of barren hill and plain, and the hospitable Garcia homestead was like an oasis to many a tired, heat-oppressed wayfarer. Capt. Garcia was a Portuguese seaman, who, weary of being tempest-tossed, had established a sheep ranch close to the mountain streams. His old home, later occupied by George Chaffey, still stands. Tradition says that its bricks were brought on the backs of burros from San Francisco five hundred miles away. The easy-going Captain had dabbled in irrigation in a small way. In 1870 he planted the first orange trees that grew in the district. He had also experimented with vines and alfalfa.

George and W. B. Chaffey, accompanied by J. C. Dunlap, of San Bernardino, arrived just in time to sit down to Thanksgiving Day dinner. Afterwards they went up into the canyons to inspect the water supply. The water was very low that season, and of the supply in sight the Captain owned one hundred inches. George Chaffey was delighted with the possibilities he saw opening before him. Drawing Capt. Garcia aside, he offered to buy 1000 acres with the water right at a price in the vicinity of a dollar-and-a-half an acre. The bargain was clinched on the spot. This, with five hundred acres of an adjoining property, formed the original Etiwanda Colony, which, in 1888, comprised nearly 2500 acres.

Work on the new colony was begun immediately. The rapid progress made demonstrated that the brothers had a magical gift for getting things done. The first survey was completed early in 1882. The land was divided into ten-acre blocks, with the water brought in cement pipes to the highest corner of each lot. By an arrangement which will be fully explained later in this chapter, George Chaffey secured an inseparable and proportionate share of water to each acre of land, and thus revolutionized the irrigation system of California.

The next step was to name the new colony. George Chaffey was particularly anxious to secure the interest of his Canadian friends in his new venture. He sought for a name which, pleasing to the ear, would have Canadian as well as family associations. Before the middle of the last century an Indian Chief who roamed over the forest-clad shores of Lake Michigan, had established friendly relations with Benjamin Chaffey, the engineer on whose life George so wished to model his own, and with John Chaffey, another uncle. His name, treasured by the Chaffeys, became a kind of family tradition, and so George, feeling it to be a link with the uncle he admired so much, bestowed the name of that Indian Chief on his first irrigation colony. That is how Etiwanda received its beautiful name.

Though Etiwanda was a small settlement compared with the projects undertaken by George Chaffey in later years, it is in many respects the most notable irrigation colony in Western America. It was the first Californian irrigation settlement watered by a cement pipe line system. In introducing this method of bringing the water to the field ditches, George Chaffey made irrigation history.

But Etiwanda is more notable still for having occasioned the creation of the Holt-Chaffey Mutual Water Company system, the model on which nearly all future Californian irrigation companies were based. This device for securing inseparability of the water right from the land and equality of right to water, independent of such conditions as distance from the source of supply or variation in the flow, possessed the simplicity of genius. It arose from George Chaffey's association with another remarkable man, whose name could not be omitted from any work dealing even remotely with irrigation in California. This was L. M. Holt, the *doyen* of irrigation journalism, at that time editor of the *Riverside Press and Horticulturalist*. Holt had a very marked influence on George Chaffey's life. He was a visionary too—something of an eccentric genius, but lacked the young Canadian's practical ability and driving force. An assiduous student of irrigation problems and irrigation politics, a weighty writer on all irrigation topics, an ardent Californian, at times an inspired counsellor — he lacked ability to translate his ideas into practical effect.

He saw in George Chaffey a rising young irrigationist, like himself an idealist, but one who possessed marked capacity for action. Holt attached himself to the Chaffeys, and became in the course of years a kind of familiar spirit of the engineer. George Chaffey's receptivity made him throughout his career susceptible to influence by men of this type, and so L. M. Holt played an active part behind the scenes in his Californian projects.

The inadaptability of Californian riparian law, inherited from England, had proved a serious obstacle to the development of irrigation in the West, causing interminable litigation and consequent loss and delay, enriching attorneys and impoverishing and disheartening irrigators. Before the development of the mutual theory by Holt and Chaffey, a chaotic condition existed. Each land owner claiming water simply put in a ditch to bring it to his land, regardless of the rights or wishes of those lower down the stream. In early days, when claimants were few, this haphazard plan worked, but later, when numbers were clamoring for water, those near the source of distribution held the upper hand and, often feeling no responsibility towards the luckless ones lower down, took their fill regardless of those who went without.

George Chaffey's scientific mind rebelled against this untidy system, with its endless disputes and losses. Holt believed he had found the solution in a system by which all the water available for the irrigation of a definite area would be owned by all who constituted the colony, the ownership of each individual to be proportionate to his holding of land, but although the principle was unassailable, a practical method of application had not been devised. It was not perfected until Holt and the Chaffeys had worked it out in detail and had applied it to the Etiwanda Colony. In its final form the Mutual Water Company system was a marvel of ingenuity, a simple solution of a seemingly insoluble problem.

Stripped of technicalities, the idea was : A water company was organized, its stock consisting of one share for every acre of land comprised in the colony. Each purchaser of land received one share in the water company for every acre held. The water rights were sold to the water company by the vendors, the Chaffey Brothers, who had, of course, purchased the water rights with the property. They received in return for the water

right all the shares in the water company, these to be transferred pro rata to the purchasers of land. Thus ten shares in the water company would be transferred to the purchaser of each ten-acre lot. The effect of this was that the water company would assume responsibility for the distribution of water to each ten-acre tract, irrespective of nearer or remoter location, and no one was entitled to more than his proportionate share.*

The articles of incorporation of the Etiwanda Water Company were filed at the office of the San Bernardino County Recorder on May 9, 1882. The original directors were George Chaffey, Charles F. Chaffey, C. Newton Ross, Thomas Hendry and R. A. Cunningham.†

Early in 1882 the Etiwanda land was advertised in the East and Canada, and settlers immediately began to come in. Not at any stage did the Chaffey Brothers have reason to feel any misgivings for the success of their first enterprise. They sold 1400 acres of land in eight months. The wild country must have looked forbidding enough to the stout-hearted pioneers who first settled Etiwanda. Bears and mountain lions were unwelcome visitors to the infant settlement. Rabbits were a pest, but the packs of coyotes making chicken-raising impossible were worse. Excepting *El Camino Real* and the old Santa Fe Trail there were no roads. Disappointments with the products of the soil were frequent at first, but the early settlers possessed a very real spirit of co-operation and patience. Success came slowly but surely. To-day, its old-time desolation and isolation gone forever, Etiwanda is a most prosperous colony—its network of beautiful shady avenues and smiling orchards a monument to the courage and tenacity of the first settlers, no less than to the vision of its founders.

Grape, orange, and lemon have brought great prosperity to Etiwanda, and for over a generation it has been producing large quantities of high-class fruit. The earliest settlers could

* The Mutual Water system is thus described in Ingersoll's *Annals of San Bernardino County* (L. A. Ingersoll, Los Angeles, 1904) :—". . . A land company would purchase a large tract, subdivide it into small holdings, construct a complete irrigation system, deed such system to a Mutual Water Company, having as many shares of stock as there were acres of land to be irrigated, taking in payment therefor the stock of the company, and it would then sell off the land to settlers, transferring one share of water stock with each acre of land deeded to such purchaser, so that when the land was all sold the water stock was all transferred to the settlers."

† The organization of the Etiwanda Water Company is fully described in Hall's *Irrigation in Southern California*, Sacramento, 1888.

not at first afford to pay nurserymen a dollar each for citrus trees, but vines put them on their feet, and they found later that oranges did splendidly in that frostless region. In a few years, hundreds of acres were under citrus trees. Vines proved very profitable after the first decade, when better marketing facilities were available. Now Etiwanda produces magnificent field-packed table grapes, Thompson's seedless and sultana raisins. It has long held a high position in the Californian fruit industry as a prize-winning colony.

THE OLD GARCIA RANCH HOUSE STILL STANDS
This photograph was taken on May 3, 1927

George Chaffey, with that long-range vision which penetrated into the future, foresaw that electric energy would entirely change conditions of living within a generation, and he determined to be a pioneer of electricity in Southern California. As a preliminary experiment he installed electric light at Etiwanda, which became the first place on the Pacific Slope at which hydro-electric current was developed. He was the first engineer in Western America to file on mountain streams for electric current. At the head works he installed a small dynamo operated by the down-rushing torrent. This provided electricity for an arc light placed in 1882 on top of the old ranch house in which George Chaffey was then living. The strange white beam which flashed across the mountain slope aroused more than State-wide curiosity and interest. Seen as far away as Riverside, it proved an effective advertisement for the Chaffey enterprise.

The rooms of Capt. Garcia's old home were lighted by incandescent lamps, the first seen in Southern California, and the wiring was done by George with his own hands.* When the Chaffeys left Etiwanda the miniature electric system fell into disuse, but thirty years later, when the then owner of the house decided to install electric light, the Southern California Edison Company, in making the connection, found that the original wiring put in by George Chaffey could be used, and so it is functioning at the present day. The Ontario *Fruit Grower* of January 3, 1884, quotes the following reference to Etiwanda's historic arc light, by E. H. Calkins, a well-known contemporary journalist, editor of *The Burlington Hawkeye*: "The most marvellous feat of Etiwanda is that the first electric light which has shown its radiance in Southern California is directed on this tract, which a year since was in the primitive condition of nature."

California's first electric lighting system caused a stir in Los Angeles, which, now beginning to awake after its long torpor, did not relish being outshone by the infant colony. Striking the iron while it was hot, George Chaffey successfully organized the Los Angeles Electric Company, the electrical parent of the gigantic Los Angeles Gas and Electric Corporation of to-day. George Chaffey made Los Angeles the first city in the United States, if not in the world, to be exclusively lighted by electricity.†

A number of the high lighting masts put in by Chaffey in 1882 were landmarks in Los Angeles up to 1912. "In 1884, we find him (George Chaffey) President and Engineer of the Los Angeles Electric Company, subsequently acquired by the Los Angeles Gas and Electric Company," writes J. A. Graves, in his book, *My Seventy Years in California*. "He thus gave to Los Angeles its first electric and power lighting system."

George Chaffey had met at the great Centennial Exposition of 1876, Alexander Graham Bell, who was demonstrating to

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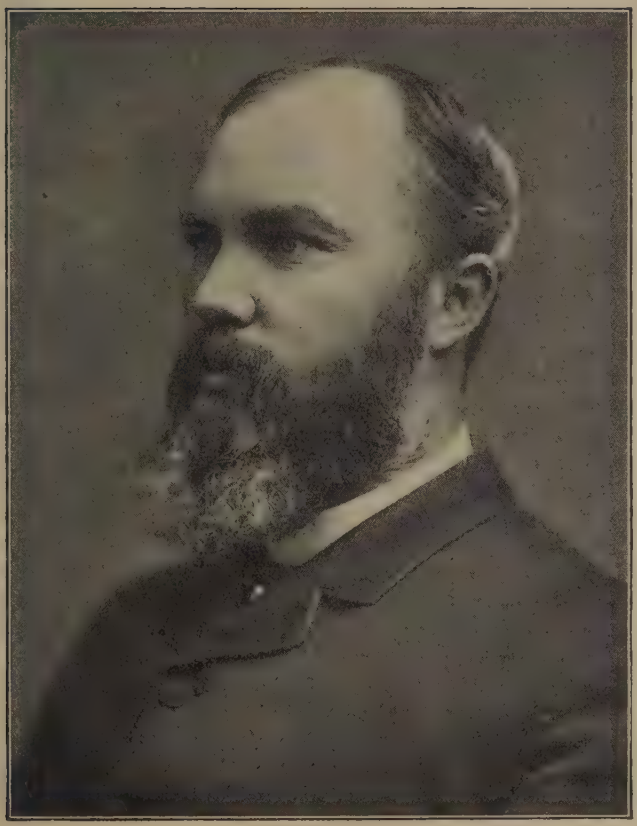
*"This was the first house west of the Rocky Mountains to be lighted with electricity developed with hydro-electric power"—*My Seventy Years in California*, by J. A. Graves, President of the Farmers and Merchants National Bank of Los Angeles (Times-Mirror Publishing Company, Los Angeles, 1927).

† Vide *Constructive Californians* (Saturday Night Publishing Company, Los Angeles, 1926) and *The Argonaut*, San Francisco, February 7, 1925.



GEORGE CHAFFEY, aged about thirty-five.

tens of thousands of visitors to Philadelphia that human speech could be conveyed by electricity over a distance. The telephone had made considerable progress in the six years that had elapsed, and George Chaffey, struck with the possibilities of the new invention, installed a private line from San Bernardino to Etiwanda, and extended it later to Ontario, six miles to the west. This was the first long distance telephone in California. It was then the longest telephone line in

operation in the world, and remained the longest in the State for some time.*

In this memorable year in which his genius was beginning to spread its wings, George Chaffey made a contact which changed the history of the most singular area in the United States—the one million acre tract later known as Imperial Valley, then an unnamed part of the great Colorado Desert. The brilliant young engineer frequently had occasion to visit San Bernardino, the County Seat, and here he met Dr. O. M. Wozencraft, a visionary dreaming impossible dreams—so it was thought, till years afterwards George Chaffey proved otherwise—of irrigating that vast rainless, lifeless, treeless, waterless expanse, which, at the same time, repelled and fascinated all who saw it. For thirty years Dr. Wozencraft had been vainly trying to interest politicians, engineers and public in the life-dream on which he spent his private fortune. Laughed at as a crank, he was one of those great souls impervious to ridicule who follow the star-like light of an ideal, renouncing everything for its sake. In his old age he had hopes of infecting the young Canadian with some of his burning enthusiasm for the burning sands of the Sahara of the Western World. But it was not to be. George Chaffey had been raised in a cold country, so Dr. Wozencraft was doomed to the fate of the man who is two generations in advance of his time. He died leaving his contemporaries unconvinced, but the Colorado Desert was destined to be conquered by the same young engineer who, in 1882, believed to be impracticable the project of slaking its age-long thirst with the golden waters of the Colorado.

The irrigation of the desert seemed impossible to George Chaffey at that time, principally because he believed white people would not settle in such a torrid region. But as if in unconscious working of a divinely ordained plan (as George Wharton James beautifully phrases it)†, George Chaffey was led by the visit to California in 1885 of Alfred Deakin, Chairman of the Victorian Royal Commission on Irrigation, to establish an irrigation colony in the Murray Valley, one of the hottest

* Vide *My Seventy Years in California*, by J. A. Graves (The Times-Mirror Press, Los Angeles, 1927).

† *Heroes of California*, by George Wharton James (Little, Brown and Company, Boston, 1910).

areas in the world inhabited solely by white people. At Mildura, where white men, women and children flourished in the heat, he revised his opinions about the impracticability of white settlement in torrid regions. His Australian experience was of vital importance to California. Without it he could never have been induced to undertake the reclamation of the desert, and that stupendous work, successfully carried out by him in the dawn of this century, might have been postponed indefinitely. George Chaffey was the one man of means and engineering standing who could be found at that period to risk fortune and reputation in what most financiers and engineers believed to be a chimerical undertaking. Money could be so easily made in America in less risky projects, that only a man who placed ideals above dollars would dream of financing such an undertaking. H. T. Cory, the engineer who in later years stopped the breakaway of the Colorado which threatened the greatest geological change in human history, thus puts it :* "As a matter of fact the chief difficulty was the fear that the torrid climate would render colonization very difficult. It was for this reason only that Mr. George Chaffey declined to consider Dr. Wozencraft's solicitations to undertake the enterprise . . . . and it was Mr. Chaffey's subsequent experience in successfully establishing an irrigation enterprise in the interior of Australia where a temperature of 120 degrees Fahr. is often reached which led him to undertake the work here in 1900."†

California in 1882 saw the first flowering of George Chaffey's colonizing genius. Before the year was out a far greater enterprise than Etiwanda was to be launched. In the next chapter will be related the story of Ontario, the wonder colony which so charmed Alfred Deakin and those who accompanied him on the historic visit to California in 1885.

* *Imperial Valley and Salton Sink*, by H. T. Cory (John J. Newbegin, San Francisco, 1915).

† Vide also *E. H. Harriman: A Biography*, by George Kennan (Houghton, Mifflin Company, Boston and New York).

CHAPTER V

ONTARIO—THE MODEL COLONY

IT is a sunny morning in the Fall of 1882. *A solitary figure is standing on the mesa at the head of the plain lying between the flood-water washes of the Cucamonga Canyon on the east and the San Antonio Canyon on the west. He is a heavily-bearded man of thirty-four, slightly above medium height, who stands long gazing with thoughtful blue eyes down the narrow rectangle of dusty, whitish-brown country extending directly in front of him from the foot of the Sierra Madre Range. The tract in which he is so interested is about seven miles long, running from north to south, and varies from a mile to three miles wide, east and west. The plain beginning at his feet is a slightly inclined plane, falling in a continuous slope to the horizon, where blue sky and purple sage brush merge and melt into one. There is not one human habitation visible—for ages jack rabbit and coyote have had it to themselves. After the infrequent rains it is covered with evanescent wild flowers, but in its normal arid state only sage brush and a few other desert growths can retain a footing there. So this lovely slope lying at the foot of snow-capped Old Baldy is useless for cultivation unless water can be brought to it from the mountains.*

The watcher long stands motionless drinking in, not the calm beauty of the valley nor the lofty grandeur of the Sierra Madres, but the charm of a scene which lies before him in imagination only. He is dreaming a dream which shall come true. He sees lying at his feet a colony settled by prosperous people setting a standard of comfort formerly deemed unattainable by ordinary people, extracting a generous living from a soil thought by generations of Spanish proprietors to be incapable of settlement. It is at once a Rus in Urbe and an Urbs in Rure, where the best features of town and country life have been retained. It is a rustic retreat without loneliness, a city without slums or saloons. He sees

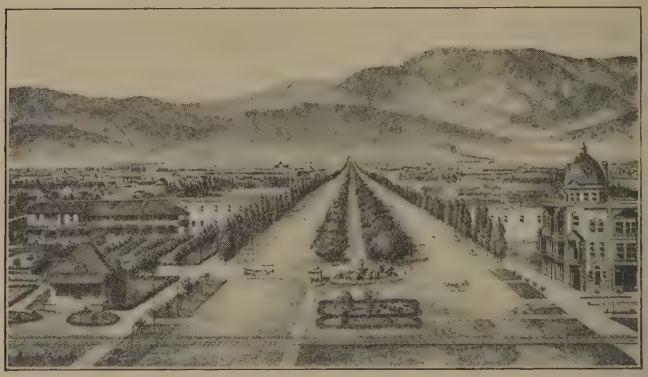
this imaginary colony bisected by a noble avenue (now one of the most celebrated thoroughfares in America) planted with a quadruple row of trees extending some seven miles in a straight line down the slope. He sees in the heart of this dream city a famous school (which will owe to him its existence and its munificent endowment), the pride and admiration of the far-flung educational district of which it will become the Alma Mater. He sees a colony bearing the euphonious name of his native Canadian Province, regarded by the people of the Americas as a model of the soundest principles of irrigation settlement and social organization—a city beautiful, bathed in perpetual sunshine. Directly above it the hoary head of Old Baldy, ten thousand feet high, pierces the clouds which cluster lovingly around, Nature and Man thus combining to make this one of the most lovely spots ever selected for human habitation.

George Chaffey, for the solitary watcher on the mesa was he, saw all this in a golden vision on the morning late in the year 1882, *from which the history of Ontario dates. He had conceived the plan of buying the Cucamonga and Kincaid ranches with the object of planting on them a colony which should surpass anything of the kind yet attempted in California. He arranged to spend the morning alone on a spot from which he could see the whole of his new domain, and there he worked out the main features of the new settlement of Ontario. To use his own words to the writer exactly forty-four years later: "From the plateau at the foot of the mountain I obtained a bird's-eye view of the whole area I proposed to acquire, and while I was standing there looking at it, I saw what Ontario was to and did become."*

George Chaffey was the last man living to let the grass grow under his feet. His restless energies were ever striking for outlet. No sooner was the success of Etiwanda assured than he began to search for a larger field of activity. He had planned another settlement which, in addition to being the largest reclamation project ever undertaken by two men, would embody ideas on the social side of irrigation colonization peculiarly his own. The venue selected was the western edge of the Cucamonga Plain, about six miles west of Etiwanda and thirty-eight miles east of Los Angeles. The eagerness with which the Etiwanda land was being taken up meant that Chaffey Brothers possessed resources—though on paper

only, for the land was sold on the time-payment plan—for a more ambitious scheme. The enterprise shown by the brothers ensured them of backing. The combination of engineering skill and business acumen displayed by the partnership had already won them a State-wide reputation.

In the winter of 1882, what is now the city and colony of Ontario was a barren waste, extending roughly from the San Antonio Canyon on the north to the Rancho Santa Ana del Chino on the south, and from Cucamonga on the east to Rancho San Jose on the west, states Ingersoll's *Annals of San Bernardino County*. Little vegetation but sage brush covered these



AN EARLY VIEW OF ONTARIO

showing the Sierra Madres, and Euclid Avenue running through the heart of the colony to the mesa. The Southern Pacific Railway tracks cross the foreground, and on the right is Ontario's first hotel. In the distance on the left is the old Chaffey College of Agriculture.

plains, which, in 1926-27, produced fruits and other crops valued at nearly $10,000,000. The upper part of the colony, extending as far south as the old trail between San Bernardino and Los Angeles, was part of the original Cucamonga Rancho granted in 1839 to Don Tiburcia Tapia by Alvarado, Mexican Governor of Alta California.

On April 15, 1882, the Cucamonga Company, into the possession of which the old Cucamonga ranch had fallen, granted Capt. J. S. Garcia, from whom the Chaffeys had purchased the Etiwanda lands, and Surveyor J. C. Dunlap, an option over that portion of the property known as the San

Antonio lands, and watered by the waters flowing down that canyon. The option was purchased by Chaffey Brothers Limited for $60,000. This area comprised about 6,216 acres, together with whatever water rights could be maintained in San Antonio Canyon, and the right to the waste waters of Cucamonga Creek. Together with the Kincaid ranch, situated in the mouth of San Antonio Canyon, it formed the original tract which George Chaffey named Ontario. The colony lands were later augmented by the purchase of railroad and government sections, and by purchase from private individuals. The land now occupied by the town of Ontario was bought from Major Henry Hancock. The Kincaid ranch was acquired from M. Ferris, of Riverside, after keen competition. Although a small property, its splendid water right and situation in the canyon made it essential to the success of the Chaffey plan.

The tract chosen for the Chaffey's new venture possessed advantages which were not fully apparent to outsiders till after settlement actually took place. Full revelation of the keen judgment and splendid business instinct of the brothers did not come till later years. The situation at the foot of the Sierra Madres was unequalled in beauty and attraction for home seekers. The gentle but continuous slope along the whole length of the tract made possible gravity irrigation at a minimum cost. It comprised cheap land which had never been cultivated, and W. B. Chaffey's confidence that it would prove highly productive when watered was vindicated beyond all expectations. Conditions for irrigation were indeed ideal. The steep canyon, rising above a shelf set at a gentle angle, ensured that water could be distributed efficiently and economically to the extreme limits of the colony. Those who questioned the Chaffey judgment believed with some reason that there was insufficient water in the canyon to irrigate a whole colony, but George Chaffey saw beneath the surface of things. He knew that under the often dry gravelly bed of the creek a considerable body of water was running to waste, and determined to bring it to the surface.

This valuable location was not obtained without a sharp struggle. Six miles west lay the settlement of Pomona, which claimed the right to the waters of the San Antonio Canyon, and Pomona interests, while affecting to ridicule the idea that such a worthless tract as Ontario seemed could be made to blossom,

determined to circumvent the brothers. As soon as Capt. Garcia's option was recorded, Professor Mills, of Oakland, and M. L. Wicks, of Los Angeles, who had extensive interests in Pomona, made an offer for it, well in advance of the figure offered by Chaffey Brothers, and verbally accepted by Capt. Garcia. The Chaffeys, hearing of this, immediately advanced their price to that offered by the Pomona people, and finally secured the option, much to the discomfiture of the opposition. Pomona's jealous interest in the Chaffey scheme sprang from a fear that the full utilization of the Cucamonga and Kincaid rights to the San Antonio Creek would mean a totally inadequate share for its requirements.* This might, indeed, have proved so but for George Chaffey's discovery of the subterranean flow. In the meantime the Pomona people, believing they had induced Capt. Garcia to break faith with the Chaffeys, sent a Mexican armed with a rifle to the canyon to defend their supposed rights against all comers. This roused George Chaffey. He promptly despatched to the scene his Spanish foreman, armed with a piece of fencing wire. Contemptuously ignoring the rifle, this worthy soundly thrashed the Mexican with his iron lash, and soon had the field to himself.

The next difficulty was the adjustment of the Chaffeys' and Pomona's water right. The Pomona Land and Water Company undoubtedly had the right to water on the west side of the creek. After protracted and troublesome negotiations it was finally agreed that Pomona was entitled to half the surface flow in the canyon. This arrangement, which said nothing about the subterranean flow, proved extremely advantageous to George Chaffey and the whole Ontario community has since reaped the benefit of his superior knowledge.†

Striking evidence of George Chaffey's far-seeing mind is shown by the fact that when he transferred the waters he acquired in San Antonio Canyon to the Ontario Mutual Water Company, he reserved the right to use the water for the development of electric power. "This was the first reservation of the

* There is a good but probably apocryphal story of an old-time circus owner who, asked why he always passed Pomona by, said there wasn't enough water in the town to give the elephant a drink. Irrigation has made the Pomona of to-day one of the most prosperous and progressive communities in Southern California.

† *The Ontario Fruit Grower*, in its first issue, dated December 4, 1882, states :—"George Chaffey has gained an undisputed right to half the waters of the San Antonio Canyon."

kind known up to that period." states J. A. Graves. President of the Farmers and Merchants National Bank of Los Angeles, in his *My Seventy Years in California* (Times-Mirror Publishing Company, Los Angeles. 1927). George Chaffey is thus a pioneer in the development of hydro-electric power as well as in irrigation settlement. Later he transferred the right to use this power to the Ontario Power Company. now part of the great Southern California Edison Company, and the Ontario community has ever since enjoyed the fruits of his far-sightedness.

George Chaffey's plan for the colonization of the new territory was "the most perfect then formulated."* The fundamental principles laid down in advance were :

(1) Distribute the water over the whole tract to each farm lot in cement pipes, each holder to share in the water proportionately to his holding irrespective of distance from the source ;

(2) Construct a main thoroughfare from one end of the settlement to the other, and lay it out in such a way that it will be a thing of beauty for ever ;

(3) Provide a College for the agricultural education of the people of the colony and for the general education of their children ;

(4) Secure the best possible class of settlers by a reversionary clause in the deeds to each allotment forbidding absolutely the sale of intoxicating liquor.

Founded on these vital principles. the colony has never departed from them. Each purchaser thus obtained with his land a location in a garden city. designed for the future. with its main lines of development fully mapped out for generations ahead ; a guarantee by the fact of closer settlement that he would have the companionship which is the chief attraction of urban life ; a water right attached to his holdings guaranteeing a perpetual proportionate supply—water right, irrigation works and pipe lines included in his original purchase money † ; the best obtainable educational facilities. furnished at the cost of the promoters with an endowment on a scale of liberality previously unknown in the history of California ;

* Vide Ingersoll's *Annals of San Bernardino County.*

† Each settler was required to pay an annual charge to defray the cost of distribution and maintenance.

membership in a community from which the drink evil was banished in perpetuity.

George Chaffey's subdivision set a new standard for rural communities. Its most striking feature was that every ten-acre lot had a street or avenue frontage. From the mesa he laid out the main avenue 200 feet wide and eight miles long to the Southern Pacific Railway crossing. Parallel avenues 66 feet wide were laid out at half-mile intervals. These were intersected by numbered cross streets running east and west every quarter of a mile, thus cutting the tract into a series of eighty-acre blocks, each subdivided into eight ten-acre lots, exclusive of the space occupied by streets and avenues. The town site comprised 640 acres, one-half of which was deeded to trustees as a free endowment for the Chaffey Agricultural College, in addition to twenty acres given to the community as a free gift for the College campus. The town lots lying on each side of the main avenue measured 33 x 150 feet. Between these and the ten-acre fruit farms was a belt of villa sites of two and a half acres each. The town lots, which naturally became business sites, were originally sold from $125. The villa lots in the suburban section brought from $250 an acre, and the horticultural lots were priced at from $200 an acre.

The main thoroughfare George Chaffey named Euclid Avenue, after his favorite study and recreation. It is a double drive two hundred feet wide, marked out by four rows of trees with a strip in the centre for a parked street car track. The trees planted were mostly Australian, chosen by W. B. Chaffey because of their heat and drought-resisting powers, as well as for those ornamental qualities which town planners of their native land have persistently refused fully to recognize. Along the east and west drives eucalypts and grevilleas were planted alternately. In the centre a double row of palms and pepper trees was put in. The trees, now the pride of the district, planted by W. B. Chaffey with his own hands, have done splendidly. The palms were later removed.

To-day Euclid Avenue is almost a little bit of Australia set in the heart of California. It provides many miles of shade, grateful to the body and charming to the eye of the wayfarer, and not the least part of the pleasure which an Australian feels on beholding this justly celebrated boulevard is that it owes so

The Famous Gravity Tram, Ontario

much of its charm to the almost despised trees of his own country. An Australian needs to see California, especially to walk beneath the lovely eucalypts of Euclid Avenue, to realize the decorative possibilities of these trees. If more Australians knew the serene beauty of Euclid Avenue, with its variegated evergreen tints, there would be fewer imported trees in their home boulevards. Even St. Kilda-road, in which Victorians justly take so much pride, is planted with English trees. It must yield place to Euclid Avenue, which to-day extends eight miles in a perfectly straight line, and possesses what should be to an Australian the supreme charm of a beauty derived from Australian trees.

Along Euclid Avenue afterwards ran the famous "Gravity" or "Mule Power Tram," in its day one of the curiosities of Western America. The slope from the mountains was so gentle that a mule-drawn street car could be brought to the mesa without difficulty, and was so uniform that the car would run the full seven miles by gravity back to the railroad crossing. The Ontario gravity tram was an ordinary car for passengers, to which was attached a small two-wheel truck. When the two mules had hauled the car to the rail head at the mountain's foot, they were placed in the truck and given the luxury of a ride the whole way back. The illustration showing this ludicrous spectacle is of considerable interest to those interested in the past history of Ontario. The street car is standing outside Ontario's first hotel. At the back of the car is the specially-reserved accommodation occupied by the two most regular patrons of the service. The Ontario Gravity Tram has long been succeeded by a modern service of electric cars and automobiles.

The water was brought down to Ontario in iron and concrete pipes. At the outset, forty miles of piping were required to reticulate the tract so that the water could be brought to the highest corner of each ten-acre lot.*

The manufacture of cement pipes for the water system was Ontario's first secondary industry. From the earliest days the cement pipes required for the irrigation works were made on the spot.

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* The original water works are described in detail in Hall's *Irrigation in Southern California*, Sacramento, 1888.

George Chaffey realized that much of the water which came down from the mountains when the snows melted percolated through gravel and stones and was lost. Risking the future of the enterprise on his judgment, he drove under the bed of the San Antonio Canyon the first tunnel for water constructed in Southern California. His judgment proved correct on this the first of many successful searches for subterranean flows, and the San Antonio tunnel revolutionized water conservation in Southern California.* A splendid stream was discovered beneath the surface, and this was led to a point at which the tunnel junctioned with the surface supply.†

The Mutual Water Company system, by which the whole of the water rights would ultimately pass to the colony, was a cardinal feature of the organization. The San Antonio Water Company was incorporated with 15,000 shares in October, 1882, and the first meeting at Ontario of the incorporators was held in November. There were no houses, so the meeting sat on a pile of earth beside the Southern Pacific Railroad track. The first Secretary was L. M. Holt, who, with George Chaffey, had created the Mutual Water Company system. The San Antonio Water Company's contract with George Chaffey is dated November 23, 1882. It provided that Chaffey Brothers were to receive the stock of the Water Company in return for the water rights—2000 shares on demand and ten shares for every additional inch of water measured under a four-inch pressure. Chaffey Brothers undertook to transfer to the purchasers of land one share of water stock with each acre sold. This contract, limiting the stock in the Water Company to ten shares for every inch of water measured in a weir at the head of Euclid Avenue on each 15th of July, guaranteed to the

* "He ran a tunnel under the bed of San Antonio Canyon to augment the surface supply of water therefrom. This was the first tunnel of its kind in Southern California." —*My Seventy Years in California*, by J. A. Graves, Times-Mirror Press, Los Angeles, 1927.

Vide *Heroes of California*, by George Wharton James.

† The tunnel is driven into the gravel and boulders of the Canyon bed, a distance of 2850 feet, beginning three-quarters of a mile below the point of surface diversion and at an elevation of 2200 feet. The measurements are about 3 feet 4 inches clear width on the bottom, 2 feet on the top, and 6 feet high. It was begun in 1882-3. In December, 1885, it had been driven 2500 feet. From the mouth of this tunnel the waters are led in a rock and cement-lined ditch about 3½ feet wide and 1½ to 2 feet deep a distance of somewhat less than 1000 feet to the junction with the main conduit from the creek at a point just below the end of the 16-inch pipe heretofore described. *Irrigation in Southern California*, by Wm. Ham Hall.

purchasers that the Chaffeys were not selling more land than they had water for. Thus the settlers were protected against the possibility of buying land for which no water was available.*

George Chaffey was not a teetotaller. But he had seen for himself in California the social ravages caused by disreputable saloons, which in his day blighted many young communities. He and W. B. Chaffey resolved, at the outset, to exclude saloons from Ontario, believing that this would be not only a grand social experiment, but an inducement for families of the type he particularly wished to attract to settle in the new colony. The deeds of the land sold by Chaffey Brothers therefore contained a clause providing that in the event of the purchaser selling intoxicating liquor, the land would revert to the vendors. Ontario was the first colony in Southern California, if not in the whole State, to prohibit the liquor traffic. Ontario has never at any time in its history contained a saloon. It remained prohibition from the day it was founded until the passing of the Eighteenth Amendment of the United States Constitution.

Work was pushed vigorously during the first year, and many improvements were made. Although the Southern Pacific railroad crossed Euclid Avenue, there was no depot at Ontario till long after the first settlers came. At first the waving of a hat would serve to stop the train. Later a red flag was provided. Ontario's first depot was a superannuated freight car converted into a station office. To-day Ontario is served by two other trans-continental systems in addition to the Southern Pacific—the Santa Fe and the Union Pacific lines.

In March, 1883, the Chaffeys decided to celebrate the laying of the foundation stone of the Agricultural College by organizing a railroad excursion to Ontario, the guests to be given an al fresco banquet on the mesa at the very spot from which George Chaffey planned the colony. This took place on St. Patrick's Day, when two crowded trains, one from Los Angeles and the other from Colton, brought hundreds of visitors, including representatives of the whole press of Southern California.

The fame of the "Model Colony," as Ontario was named by a party of Australian visitors in 1885, was spread by the excursionists and their friends. Settlers flocked to Ontario

* A more technical description of the organization of the Water Company is found in Hall's *Irrigation in Southern California.*

EUCLID AVENUE, ONTARIO

as Alfred Deakin saw it in 1885, when, accompanied by two Australian journalists—Dr. E. S. Cunningham and J. L. Dow—he visited California as President of the Victorian Irrigation and Water Supply Commission. In the foreground is the fountain at the Southern Pacific Railway Crossing, referred to in the text.

from Canada and different parts of the United States, so that the founders were kept busy making out title deeds and piping water to the tracts as they were sold.

The municipal value of Ontario in 1884 was $93,200. In 1886, the last year of the Chaffey regime, it was $310,000. Its phenomenal growth is shown by the fact that in 1891 it was incorporated a city of the sixth class. Nine years before, there was not a single house in the district, and only the Chaffeys had imagined that it could be made suitable for settlement. Above four hundred families settled at Ontario under Chaffey auspices. Its present population is about 20,000.

Ontario's first newspaper, *The Ontario Fruit Grower*, established before there was a single house on the colony, was a typical example of the spirit of the times. Its first issue, dated December 4, 1882, contained a leading article referring to the wonderment that would naturally be felt at the appearance of a newspaper in a district which yet contained no habitations, but pointed out, what indeed could not be gainsaid, that the very fact of its establishment was conclusive evidence of faith in the future of the new colony. The enterprising editor was Edward A. Wood, and as the paper, for obvious reasons, could not be produced at Ontario, it was printed at Riverside.

Pomona's jealousy of its upstart neighbor was unbounded in those days. This first took the form of a warning to all tempted to purchase land at Ontario, that there was no possibility of irrigation there, for the very good reason that there was no water available. So George Chaffey, to show that Ontario had water to spare, installed a fountain on Euclid Avenue, at the Southern Pacific railway crossing and, as each train passed by, turned a great jet of water on, which shot into the air for the edification of the passengers, particularly those from Pomona.

When the Chaffey Brothers announced their intention, early in 1883, of building a hotel (Coffee Palace it would have been termed in Australia in those days), Pomona was frankly contemptuous, declaring that the only guests would be jack rabbits. But the hotel was built, and it and its successors have since enjoyed a greater prosperity than the patronage of jack rabbits could have been expected to bring.

George Chaffey's quiet sense of humour was responsible for a joke on the Pomona people, which went all over America.

Various church denominations had been given, on application, a free grant of land at Ontario, but the Baptists had not applied. When the leading lights of the Baptist Church—who had been prominent in ridiculing the prospects of Ontario—wrote to George Chaffey asking for a gift site for a meeting house at Ontario, he gravely wrote back, reminding them he had their authority for it that there was insufficient water at Ontario for the purposes of Baptist ritual!

In 1903 the U.S. Government paid Ontario the supreme tribute. It was selected as the standard for American Irrigation Colonies, and a model of the entire colony was made by Federal engineers for exhibition at the St. Louis World's Fair, held in 1904. In announcing this decision on January 17, 1903, *The Ontario Record* stated :—

" Ontario has become the accepted model of the whole country in that line of development which is everywhere recognized as the greatest line of industrial achievement now attracting the attention of the whole American people."

Here is the story of the triumph of Ontario as told by the Los Angeles *Times* :—

" Southern California will offer a novel attraction to the exposition at St. Louis next year. It will be a miniature irrigation system. It is to be patterned after a system now in existence in Southern California, but it is to be placed in the exposition by the Hydrographic Bureau of the Geological Survey of the Federal Government.

" When the government officials began to look over the various irrigation plants with a view to selecting one which would represent the highest advancement, they turned to California, and their final decision rested on the plant of the San Antonio Water Company, which furnishes most of the water in use on the Ontario Colony lands, the company being a co-operative organization, the stock in which is held by the land owners, operating as are most of the co-operative water companies in Southern California.

" In many respects the Ontario irrigation system is similar to other systems in Southern California. But there is one respect in which it differs fundamentally from any other, and that is the reason the government officials took it as the highest type of an irrigation system.

" Not only does the company take all the water from San Antonio river for irrigation purposes, but it utilizes the water under heavy pressure for generating electricity, the electric energy being utilized in great part to pump water from many wells for still further

AERIAL VIEW OF EUCLID AVENUE AND ONTARIO
showing Old Baldy in the background.

irrigation. The electric plant, like the irrigation system, is owned by the land owners of the colony, the stock in the Ontario Power Company being all owned by the San Antonio Water Company, and in addition to using the electricity for pumping purposes, it is used for light and power purposes throughout the colony.

"Thus is the river made to do its utmost in irrigating the land, and driving the wheels of industry, while the members of the company believe they can see the time coming when water users

will not only have all operating expenses paid by the sale of electricity, but will actually draw dividends on the water stock, on which they had until recently expected to have perpetual assessments.

" The plant which will thus illustrate the progress of Southern California, was completed but a few weeks since, the electric current from its power house having first been sent over the wires on December 24.

" San Antonio river, whose waters are used for thus promoting the energies of Ontario Colony, is fed by the snow on Mount San Antonio, or 'Old Baldy' as it is familiarly known, the stream coming from the mountains northwest of Ontario. From the mouth of San Antonio Canyon, and from the neighboring foothills, the valley slopes rapidly to the southward, in eight miles falling from an altitude of about 2500 feet above sea level to 900 feet. On this inclined plane the Colony of Ontario was founded about twenty years ago by Messrs. Chaffey, who have been active in irrigation development in California and Australia for a quarter of a century. The irrigated land is used exclusively for growing oranges and lemons.

" In the earlier days of the colony there was thought to be ample water developed to meet all requirements, but with the lessened rainfall of the last few years, this colony, in common with all Southern California, found it necessary to resort to heroic measures to develop an additional water supply. Water-bearing land was found near by, and an abundant supply of water was developed by drilling wells. It was found, however, to be expensive to pump a large body of water to the surface of the ground from deep wells, and then there was taken up a project which had been considered for some years, of making the water in the canyon furnish power to pump the wells in other parts of the colony.

" The river has that characteristic of mountain torrents, a heavy fall, and it was necessary to conduct the water but a comparatively little distance in a ditch around the foothills to a point where it would have a drop of 700 feet to the power house. The volume of water is such that, estimating on the lowest flow of water ever known, the minimum power to be developed is estimated at 400 horse-power, while the maximum is estimated at about 1200 horse-power. Even the smaller amount is sufficient to pump all the wells, light the houses and streets of the town and meet such demand for power as now exists in the colony.

" The fact that the electric plant as well as the water is owned by the land owners of the colony, gives to the entire system what is

practically public ownership, resulting in the people of the colony getting both water and electricity at cost of production."*

Ontario's output in 1907 was valued at $2,500,000. The orange and lemon groves were giving returns far beyond expectations, and its credit stood so high that its municipal bonds were selling on a four per cent. basis. The building and loan institution had never made a single foreclosure. Savings Bank deposits amounted to $1,000,000. The city possessed an electrical power scheme developing 2500 horse-power, and electric cars ran along Euclid Avenue from the railway to the mountains. The foresight and skill of E. H. Richardson had founded at Ontario a small factory for the manufacture of electrical appliances, which developed into the great *Hotpoint* works, the products of which were sent all over the world. So far back as 1908 the *Hotpoint* works employed 150 operatives. But there were certain features present in every other modern city, and indeed believed to be essential to every civilised community which Ontario lacked. It had neither saloons nor gaols.†

In the next chapter an account of the Chaffey Union High School at Ontario will be given. The facts are of wide interest as showing the community benefits which can flow from a wisely-planned scheme of educational endowment.

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* The Ontario Power Company was organized by George and A. M. Chaffey after their return from Australia towards the close of last century.

† In 1926, Ontario had a population of 14,500. Its bank deposits aggregated $3,919,000. The annual pay roll of its stores and factories was nearly $4,500,000. During the 1926-7 season, citrus fruit valued at $4,600,000 was exported from the district. The average annual output of deciduous fruits for the past five years has exceeded $1,100,000. In 1926, 3300 car loads of fresh grapes were shipped from the district. Walnuts valued at above $250,000 and 40,000 boxes of apples were also sent from Ontario. The dairy industry produced 20,000 gallons of milk daily, returning more than $2,000,000 annually to the producers. As a result of the work of the Chaffey Union High School Agricultural College, the average production of butter fat in Ontario was 419 lbs. per cow per year. Ontario supplies about one-fifth the milk consumed in the Los Angeles metropolitan area. In 1926 there were 200,000 laying hens in the Ontario district, and 25,000 lbs. (live weight) of rabbits were shipped weekly.

The Hotpoint (Edison Electric Appliance Company) works at Ontario manufactured products worth $2,600,000 in 1926, and other local manufacturing plants produced goods estimated to be worth $500,000.

The waste lands of the old Cucamonga ranch bought by George Chaffey for a few dollars an acre some 45 years ago, have now acquired a fabulous value. Recent sales of orchard property in the colony have realized up to $2400 (£480) an acre. These prices were paid for citrus groves without buildings.

CHAPTER VI

THE CHAFFEY COLLEGE OF AGRICULTURE

THE provision of special educational opportunities for Ontario was one of the cardinal features of the Chaffey project. George Chaffey planned Ontario to be the scholastic centre for all the country around it.* There was a business as well as an idealistic side to this ambition. The absence of schools is one of the greatest hardships felt by thoughtful parents raising families in newly-settled districts. The Chaffey policy solved the problem without imposing any financial burden on the settler. It made Ontario doubly attractive to married men and, by inducing men with families to take up land, made the settlement more cohesive and homogeneous than it could otherwise have become. The idea that a new colony should provide, at the cost of the founders, not merely general but secondary and agricultural education, was quite novel and in itself was a splendid advertisement for Ontario.

George Chaffey desired that the college should be of use to adults as well as to the rising generation of Ontarians. Hence the decision that the institution should be distinctly agricultural in character. He was anxious to see planted on Euclid Avenue an academy which should be an essential part of the community life, growing with Ontario in size and importance and possessing a definite status in the academic life of California. The first objective was achieved by an endowment on an unheard of scale of liberality—no less than a free gift of one-half of the Ontario town lots, plus twenty acres in the heart of the colony for a campus; and the second by a

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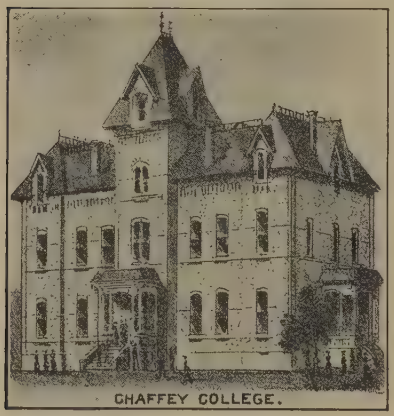
* "The aim and purpose of the founders of Chaffey College was that it should become a centre for arousing a vital and enthusiastic interest in advancing the cause of agricultural education throughout not only the South, but the entire State as well."—Gay's *History of the University of Southern California.*

formal connection with the University of Southern California. Unfortunately, this link was snapped years after the Chaffey regime by misunderstanding arising out of financial problems, but in 1921 the Chaffey Junior College became affiliated with the University of California*, and Ontario students after leaving high school may spend their first two years at "Chaffey," as the old school is affectionately termed. Parents are thus saved an expenditure of from $1000 to $1500 for each child who takes the two years' course.†



CHAFFEY COLLEGE OF AGRICULTURE as it appeared in 1885.

The Chaffey College developed beyond the most sanguine expectations of the founders of Ontario, and to-day *the Chaffey Union High School and Junior College*, to give it its full title, is a twin institution, comprising a great secondary school and a provincial university college capable of putting undergraduates through the first two years of their course. The magnitude of its operations may be gauged from the fact that in 1926-7 3954 students of both sexes, including 1971 adults, were taking courses from 93 instructors. Of these, 340 were attending the Junior College, and 1237 children were enrolled at the High School, in addition to 406 part-time pupils. The expenditure for this period was about $300,000. In addition to its ordinary High School and University routine, "Chaffey" conducts university extension and part-time classes for adults, and a travelling Americanization Department working among the

* The University of California is the State University, and is located at Berkeley, near San Francisco. It must not be confused with the University of Southern California, a separate and independent institution situated at Los Angeles.

† A college student in the U.S.A. is an undergraduate, not one attending a secondary school.

Mexican population.* Australians will find more than a grain of humor in the statement that it conducts experiments in rabbit breeding! "Chaffey" last year owned property valued at $1,011,000, of which $660,000 is represented by buildings.

Students graduating from the High School, on receiving the Principal's recommendation, may enter a University without examination. Students completing their course at the Junior College are credited with two years, and thus enter the State University or other similar institutions as third-year students.

The Agricultural Department is conducted on a most elaborate scale. It cultivates 102 acres, of which twenty-two are under citrus and sixty under deciduous trees. There is a model dairy farm of twenty acres stocked with Holstein cattle and prize pigs, and a poultry plant with a capacity of 1000 hens. In addition there are full laboratory and business courses for agricultural students. These facts give some idea of the beneficial results which may flow from a noble plan executed in the spirit in which it was conceived. Three generations of Ontarians have enjoyed the fruits of the Chaffey foundation, and generations unborn will cherish the name Chaffey if only for the fact that it is borne by their Alma Mater.†

The circumstances connected with the actual founding of the Chaffey College of Agriculture are of great historic interest. Towards the end of 1882, the Directors of the University of Southern California accepted the offer of George and W. B. Chaffey to endow land at the Colony of Ontario, then still in embryo, in trust for a branch University to be established there. The deed of trust of the Chaffey College of Agriculture of the University of Southern California was executed by George Chaffey and Wm. B. Chaffey to A. M. Hough, J. P. Widney, E. F. Spence, C. D. Compton, C. B. White and R. M.

* There are only four cities in Mexico itself which contain more Mexicans than Los Angeles. In addition to the descendants of the original Spanish-Mexican population, there are the offspring of the thousands of families attracted to Southern California from the neighbouring Republic during the last twenty-five years by the high wages offering. The Chaffey "Americanization Department" does very necessary and valuable work in the Mexican community in its district, teaching children and adults English, and the women domestic economy, mothercraft and child welfare.

† The Chaffey Union High School District has been fortunate in its trustees, who have worked together with true public spirit. The President (E. C. Harwood) has devoted himself, without compensation, for nearly a generation to the welfare of the school, and Professor Merton Hill, who has been Principal of the School ever since the creation of the District, has carried out the traditional policy of the School with distinguished success.

Widney as endowment trustees. The deed conveyed to the trustees 384 town lots and 270 acres, including twenty acres reserved for a campus at an estimated valuation of $100,000,* the income from which was to be used for the support and maintenance of the College. No lien, mortgage or encumbrance could be placed on the property, and the net income was to be turned over to a Board of Regents, the first $12,000 or thereabouts realized from the sale of land to be expended on a suitable building to be erected on the campus. Control was vested in a board of eleven Regents, six to be appointed annually by the University and five by the Endowment Trustees. This arrangement gave the University ultimate control. The President of the University was also ex-officio president of the faculty of the Chaffey Agricultural College.

This deed of trust was accepted by the University corporation on December 22, 1882, and in February the first Regents were appointed—George Chaffey, L. D. Dyar, W. B. Chaffey, H. Sinsabaugh and S. J. Fleming, nominated by the Endowment trustees, and J. B. Green, R. W. C. Garnsworth, Charles Shelling, E. F. Spence, S. C. Hubbell and P. M. Green, nominated by the University Board.

The foundation stone of the College was laid on March 17, 1883. Among those who delivered addresses on that historic occasion was Professor E. J. Wickson, afterwards Professor of Agriculture at the University of California, author of Wickson's *Californian Fruits*, and several other authoritative works on horticulture and agriculture.

Work on the College building proceeded slowly, and it was not opened until 1885. All the bricks used were made at Ontario. It was a large three-story building, considered very fine in those days, and, with furnishings, cost about $17,000. The first Principal of Chaffey College was Professor L. W. Wheeler.

At the end of two years, lack of funds following an unwise handling of the princely endowment, after the departure of the Chaffeys for Australia, made it impossible to continue the agricultural features of the College, and it was reorganized on a purely academic basis. While the funds available were insufficient for the equipment of an Agricultural College in all

* Gay's *History of the University of Southern California.*

of its departments, including the apparatus needed to meet the demands of advanced laboratory practice, yet the school was fully able to place its Preparatory Department upon a broad and solid financial foundation.*

For more than two decades the Chaffey College of Agriculture served as an affiliated branch of the University of Southern California. The link was finally broken in January, 1906, as the result of protracted litigation arising out of a difference of opinion between the residents of the Ontario Colony and the University regarding the use to which the endowment could be put. The contention of the community was that the fund could be used solely for local educational purposes, and could not be properly spent outside the district. An agreement registered in the Superior Court was arrived at on January 16, 1906, by which the University of Southern California relinquished all claim on the trust property and on the administration or conduct of the Chaffey College in consideration of the transfer to it of property then worth $20,000 to be used as an endowment for scholarships given by the University to Ontario students only, at the rate of one scholarship for each $2000 of endowment, with a maximum of ten annual scholarships. As a result of the litigation the old board of trustees controlled by the University of Southern California was abolished and a new one comprising George Chaffey, W. W. Smith and Walter Rose was set up in its place.

In 1901, the Ontario High School District had been organized, the High School replacing the old Agricultural College. Until 1909, by arrangement with the endowment trustees, the High School occupied the Chaffey College building. In 1909, the trustees of the Ontario High School purchased from the endowment trustees a tract of five acres on which to erect a new High School building. In May 1911, the citizens of Ontario and Upland (formerly North Ontario), who had been at variance on public questions, voted by a large majority to form a Union High School District, to which the name Chaffey was attached. Recognizing in this decision the fulfilment of the wishes of the founders, the Chaffey endowment trustees transferred to the Union High School District the remaining eight acres of the campus site on Euclid Avenue, and agreed to dedicate for

* Gay's *History of the University of Southern California.*

library purposes the income on the endowment fund, then amounting to $80,000. They also gave the District the use of an adjoining seven-acre orange grove, to be used for experimental purposes by horticultural students. On August 25, 1911, $200,000 was voted by citizens of the District for new buildings, and in June, 1920, $275,000 was voted in bonds for further improvements.*

Chaffey Union High School now occupies a group of buildings composed of the Liberal Arts building, the Science building, the Auditorium and Library building, the Home Economics

CHAFFEY COLLEGE OF AGRICULTURE
at the present day.

and Cafeterias building, Manual Training shops, Greenhouse and Lath House, the Plunge and Gymnasium, and the Poultry and Pigeon experimental stations. These buildings, with the lawns and athletic fields, and the experimental farms operated by Chaffey occupy about 120 acres of land. Attracted by the service offered by Chaffey, neighboring grammar school districts have joined by petition the Chaffey Union High School District, which now includes Alta Loma, Camp Baldy, Central Cucamonga, Etiwanda, Fontana, Mountain View, Ontario, Piedmont and Upland.

A fine spirit of loyalty and attachment to home associations and to the home town has always been a notable feature of Ontario life. The ideal of an educational system designed

* In 1926 the Chaffey Union High School District had an assessed valuation of $18,100,000, this figure representing 33⅓ per cent. of the actual value of property in the district.

to keep the rising generation in the colony and to equip young Ontarians for service amid the various activities of their own community was fundamental to the Chaffey plan. This policy, lost sight of for a time after the departure of the Chaffeys for Australia, was happily revived when the Chaffey Union High School District was created, and, with the co-operation of public bodies, as well as of private employers, it has succeeded to a remarkable degree. Ontario has always been able to provide attractive employment for practically all its boys and girls. This has prevented the exodus to the great cities of the more enterprising and talented of its young people, and so Ontario has never been drained of its youth and brains as have so many rural communities in the United States and Australia. Young Ontarians are impressed from their earliest school days with the ideal of service for and in the colony.

When the Chaffey Union High School was but five years old, it became evident that the community needed a junior college, and, at a meeting of the Board of Trustees on Friday, August 11, 1916, a resolution establishing a junior college was passed in accordance with an Act of the Californian Legislature, which states :—

" The High School of any school district may prescribe post-graduate courses of study for the graduates of such High School or other High Schools, which courses of study shall approximate to the studies prescribed in the first two years of University courses."

The historic resolution of the District follows :—

" Realizing the fact that the leading High Schools of California have established post-graduate courses, popularly known as junior college courses, and realizing that at the present time there are a large number of local graduates who are expecting to return to Chaffey Union High School to do post-graduate work ; realizing further that a large amount of expense will be saved the patrons of the district, and recognizing the fact that the local equipment in laboratories and library will be ample for enlarging the work of the school, the Board of School Trustees of Chaffey Union High School District hereby establishes a post-graduate department in its High School, to be known as the Junior College for Chaffey Union High School District."

During the years following this decision, the Junior College has shown steady development. It was clearly seen that to fulfill to the largest extent the obligations of the institution it would be well to organize permanently along the lines of

agricultural education. At a meeting of the Board held in March, 1919, a resolution was passed to reorganize the Junior College along agricultural lines, and to include two years of agricultural work. In accordance with this policy a number of agricultural courses were added. From year to year also additional work has been offered in other departments, until, at the present time, there is available an amount of work equal to approximately four hundred college units, distributed among several strong departments. The number of students in attendance at the Junior College has grown steadily since its organization in 1916. In 1925-26 the average daily attendance of under-graduates reached the record total of 202.

The Junior College Law of 1921 provides for correlation of junior college courses with the upper division courses of the University of California. In accordance with the law an agreement was made between the president's office of the University of California and Chaffey Junior College, known as the "Affiliated Agreement," and Chaffey was designated an affiliated junior college. During the spring of 1926 it was agreed by mutual consent between the University of California, on the one hand, and the junior colleges of California on the other, that this agreement should be replaced by another somewhat broader in scope. Accordingly, the affiliations were abolished.

By the new agreement, junior colleges are in the same relationship to the University of California as are all other colleges. The graduates of the junior colleges are received at the State University on the same basis as are undergraduates transferring from any other institution, provided they have the recommendation of the Dean and Principal. In 1921 the Junior College was reorganized under the new California law; a district coterminous with the Chaffey Union High School District was established and a Junior College Board elected.

When the Union of the High School Districts of Ontario and Upland was effected in 1911, the trustees of the endowment fund, which had then grown to $80,000, were George Chaffey, his eldest son Andrew, and W. W. Smith. These trustees, working in co-operation with the Union High School board, decided that the income from the remains of the original endowment, to-day worth well over $100,000, should be used to build up a great Library to which the public as well as the students would have

access. It was later decided that $1000 be set apart each year for agricultural experiments. The Chaffey Library, fittingly housed in the original college building, now contains above 20,000 volumes. The library is constantly augmented by the purchase of books and equipment from the income of the Chaffey endowment fund. As it has been carefully selected for the purpose of general reference work, it is of the utmost value to the community as well as to the teachers and students of the school. In the reading room about 150 daily, weekly and monthly publications are kept on file. Both reading room and library are constantly in use by the students of the school and members of the general community who desire library aid in special lines of work.

THE CHAFFEY LIBRARY
showing part of the original building.

Among the many annual prize contests at Chaffey are two which should appeal strongly to all Britons who look forward to closer relations with our cousins of the United States. Unique in their way, they embody an idea which such bodies as the English Speaking Union could elaborate with a view to advancing the noble ideal of a deeper friendship between the English-speaking nations. They are :—

THE BENJAMIN CHAFFEY AUSTRALIAN FRIENDSHIP CONTEST.

This contest was established and endowed in 1924-1925 by Mr. Benjamin Chaffey, of Melbourne, Australia, for the promotion of a spirit of amity towards Australia through extending information upon the land, the people and the institutions of Australia. It is an oratorical competition held on the last

Monday of October of each year, and is open to both the High School and Junior College pupils.

THE ANDREW CHAFFEY CANADIAN FRIENDSHIP CONTEST.

This contest was established and endowed in 1924-1925 by Mr. Andrew Chaffey, of Los Angeles, California, for the promotion, through better acquaintance, of a cordial feeling toward Canada. It is held annually on the first Monday of May, and is open to both High School and Junior College pupils.

BOOKPLATE OF
THE CHAFFEY LIBRARY.

Chaffey produces several school publications edited and conducted by students of the school of journalism to depict life on the campus and to develop school spirit and interest.

The following extract from an article on Chaffey, published in *The Country Gentleman*, of September 25, 1920, will be found interesting and instructive by Australian readers :—

"This is the Chaffey idea, in one phase though! : ' What we want to do is to go right out into the sand with our school.' 'And we are doing it,' Principal Hill said to me. ' Right out into the sand !' That sounds like slang— like saying, ' right out into the tall timber,' or something like that. But no. It is literally true, for, you see, the Chaffey School is located in one corner of San Bernardino County, and much of the school district is in a region which has been reclaimed from the desert within a few years.

" In fact, there are places within the school district where, after a ' Santa Ana,' or severe north-east wind, the dwellers hustle outdoors to relocate their real estate holdings. The contour of the

country changes frequently. 'Well, and what can Chaffey School do about that?' Is this remarkable rural school so departing from the austere curriculum as to meddle with the elements? Yea, verily, that is just what Chaffey is doing. Chaffey figures out that it is not merely a school. It is a guiding spirit for the welfare of a big agricultural area. It is not in existence merely to educate the minds and hands of the farmers' children. It sees as part of its work the betterment of the homes in which they are going to live and the taking of gamble out of their farming. So, in the slat-covered seedling houses of the Junior College, right back of the main school buildings, I saw 100,000 seedlings of white-gum (a kind of eucalyptus-tree), growing up to the required size, to be sent out to the sand and planted as windbreaks, to stop these annoying real estate changes. A local beet-sugar company is growing another 100,000, in conjunction with Chaffey. The 200,000 trees will be distributed freely (*i.e.*, gratuitously) to those who need them."

CHAPTER VII

THE PRECURSOR

LEAVING George Chaffey and his brother to build up Ontario, we must now cross the Pacific to Victoria, where momentous events bearing on Californian as well as on Australian history were occurring. Late in 1884, the Victorian Government, roused to action by the desperate position of settlers in the northern dry areas following on a drought which had lasted continuously since 1878, appointed a Royal Commission to investigate the possibility of irrigation in Victoria, and sent its President, a young man of twenty-eight named Alfred Deakin, to America to report on achievement and prospects there. In Los Angeles, Alfred Deakin met George Chaffey, and this historic encounter led to the creation of the Mildura Irrigation Colony little more than a year later. Irrigation colonization thus came to Australia through the visit of Alfred Deakin to California early in 1885.

The marked similarity in the history and development of Victoria and California up to this period has already been touched on. Both countries owed their development to a simultaneous epidemic of gold fever which became endemic, and did not subside until a generation had passed away. Victoria, the most southerly and smallest State of the Australian Continent, so delighted the eye of Sir Thomas Mitchell, the first white man who crossed it, that in a burst of enthusiasm he named it Australia Felix, and its history has shown the excellence of his judgment. But about one-fifth of Victoria's 88,000 square miles—12,000,000 acres lying north of the thirty-sixth Parallel—is arid or semi-arid, the rainfall ranging from nineteen to eleven inches, with an average of thirteen inches a year. That part of this region, comprising the extreme north-west corner of the State, is named The Mallee, after the dwarf eucalyptus* with which it was densely covered in

* Termed Eucalyptus Dumosa, but this name is now attributed to only one of the dozen distinct species of Mallee.

those days. The Mallee is the only tree which thrives in this sun-baked region.

Settlement in Victoria necessarily began along the coast, which forms the southern boundary of the State, and was confined to the seaboard until the discovery of gold in 1851. The goldfields lay roughly along the northern edge of the well-watered areas which had been largely occupied by squatters. Early Victorian legislation inspired by the squatters, who dominated the political life of the young colony, had encouraged the aggregation of huge estates. These estates for the most part comprised the choicest lands of Australia Felix. How aggravated this evil became may be seen from Deakin's speech on the second reading of the Land Acts Amendment Bill in the Assembly on November 28, 1882. "The fact that in these first movements of our national life we have allowed about 180 persons to have absolute control for all time over 4,500,000 acres should show us that we have been pursuing a mistaken policy indeed," he said. The effect was that when, following on the decline of the gold yields, people sought to take up land, they were forced out into the unsettled semi-arid regions.

About a decade before great numbers of disillusioned gold diggers began to move northwards into the dry territory in quest of cheap land, there was born in Fitzroy, a suburb of Melbourne, a boy named Alfred Deakin, destined to become one of the most remarkable men Australia has produced—the precursor of scientific irrigation in Australia, a statesman who gave peerless service to his native State before the larger cause of Australian Federation claimed him and made him its own. While still in his twenties he formulated the first comprehensive irrigation policy ever presented to an Australian Parliament. In later years he, more than any other man, by burning eloquence, born of an intense and unselfish love for his native land, persuaded the Australian people to think in terms not of States but of a Nation ; and so he was one of those who made possible the creation of the Commonwealth of Australia on the first day of the first year of the present century. Alfred Deakin not only called the Commonwealth into being ; he gave it form and shape and carved out its path for a generation ahead. Practically every principle that he in pre-Federation days held to be vital for a Federated Australia became embodied in the Commonwealth Constitution or passed into Federal law. The

greatest of these was the White Australia policy, which has preserved our ninety nine per cent. racial purity.

The spirit of Alfred Deakin is still abroad in Australia, and his fame is becoming greater as the years pass. Many Californians will remember this great man, then in his declining years, whose oratory so charmed official visitors to the Panama-Pacific Exposition held in San Francisco in 1919—a tall, dignified, bearded figure, pathetic too when one realized that his great powers were then almost burnt out.*

Elected to the Victorian Parliament in 1879, just before the disastrous 1879-1884 drought, young Deakin, who had already made a name for himself as a leader-writer for David Syme's then all-powerful paper, *The Age*, immediately attracted public attention by a quixotic act of political chivalry characteristic of the man—for chivalry and generosity were the essence of his nature.† With a precocity recalling the career of the younger Pitt, this boy of twenty-three at once became prominent in the public life of the State. If ever there was a man destined to greatness it was he. The protracted drought which caused so much ruin and suffering in the early eighties, made a profound impression on his ardent imagination. His generous spirit was touched by the hapless plight of the farmers of the North, lured out into the dry regions by a delusive succession of good seasons, only to be mocked by the spectre drought. He took up the cause of irrigation with ardor, and devoted himself to it with heart and soul for the next decade. As Professor Murdoch states, his irrigation work was his first

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* Alfred Deakin, thrice Prime Minister of Australia, was born on August 3, 1856, and died on October 7, 1919. Those interested in his extraordinary career are referred to Professor Walter Murdoch's fascinating work, *Alfred Deakin : A Sketch*, Constable and Company Limited, London, 1923.

† On the day that the Parliament elected in 1879 met, Deakin, then a boy of 23, concluded his maiden speech by tendering his resignation. On polling day an insufficient number of ballot papers had been issued to a tiny polling booth in West Bourke, the constitutency which Deakin had wrested from the Conservatives, and it is said as many as four electors had been disfranchised. Although Deakin was returned by 97 votes, he insisted on resigning, and, contesting the seat again, was defeated. But he was soon back in Parliament. Such an act of political sacrifice is probably without precedent in the history either of Australia or America. It was characteristic of his whole career, which was, from beginning to end, distinguished by lofty disinterestedness. In Federal days he startled Australia by refunding to the Treasury a substantial proportion of the modest sum granted by the Commonwealth Government for his expenses as Australia's Delegate to the Imperial Conference. This, too, was an act without precedent in Australian political history. Three times at least he refused a title.

ALFRED DEAKIN, in 1884. Aged 28.

From a hitherto unpublished photograph kindly lent by Mrs. Deakin.

great service to his native land. It certainly was not the least.

Inspired by the zeal of a crusader, he carried on an irrigation crusade among the people which afterwards made it possible for George and W. B. Chaffey to establish Mildura and Renmark. But his work was not merely declamatory, it was eminently practical and constructive. He introduced the first irrigation measures passed by the Victorian Parliament, and, with the experience gained by his visit to America in 1885, embodied in the 1886 Irrigation Act a State irrigation organization which is the foundation of Victoria's present-day water supply and conservation system.*

The Deakin state irrigation policy failed on the financial side because of the weakness inherent in all such enterprises involving large expenditure by the State for the benefit of a section capable of exerting political pressure—the difficulty of inducing those for whose benefit the expenditure is made to honor their financial obligations. Constituents of the irrigation trusts set up by Deakin readily accepted the advantages of the new policy, which indeed saved many districts from depopulation, but by political influence brought to bear on members of Parliament for the districts concerned, succeeded in evading payment both of interest on and principal of vast sums borrowed by the State. Thus the general taxpayer had to shoulder the full responsibility of a policy of direct benefit to a section only. No wonder it was that Deakin's policy seemed a costly failure to those who had to pay the piper, but the causes of that failure were altogether beyond his control.

* Deakin's Water Supply and Irrigation Bill of 1886, which was presented to Parliament on June 24, while his negotiations with George Chaffey for the establishment of a large scale private enterprise irrigation scheme in Victoria were proceeding, was monumental in introducing the principle of State loans for irrigation schemes approved by a majority of the people within a given area. A group of such residents constituted for irrigation purposes a unit known as a Trust, controlled by an elective body, and authorized to borrow up to 70 per cent. of the value of the land proposed to be served after plans and specifications had been checked by officers of the State Water Supply Department. Trusts were empowered to construct all necessary works of storage diversion and distribution excepting such as affected two or more districts, or were held to be of such importance from a national standpoint as to call for their construction and control by the Government itself. Loans became a first charge on the land, and hence the mortgagees were entitled to be heard in opposition before any responsibilities were incurred. The Bill sought to limit riparian rights to a sufficient supply of water for domestic and stock purposes, thus virtually abolishing the English doctrine of riparian rights which was held, though legal opinions differed, to obtain in the State. This proposal was too revolutionary for the Parliament of the day, and did not come into operation in Victoria till many years afterwards.

He repeatedly reproached the water users for their lack of public spirit; but they knew that they could not be made to pay, and, for the most part, did not pay.

In addition to his invaluable and indeed indispensable platform and administrative work as Minister for Water Supply for over four years, Deakin was the most notable contributor to English irrigation literature of his day. His official report to the Victorian Parliament on his American visit—*Irrigation in Western America*—was regarded as a marvel of accurate observation. It was immediately reprinted by the United States Government as a text-book, and remains a classic. The writer, looking through old files of Riverside papers, discovered this reference to it in the *Riverside Press and Horticulturalist* of September 12, 1885:—

"The fact is that Californians can find more about irrigation appliances through this report than they can by perusing any work published in the United States either by Government enterprise or private authority."

This paper was edited by L. M. Holt, George Chaffey's associate, already mentioned in this work. It was Holt who had shown Deakin round Riverside early that year. Deakin's other principal writings on irrigation were *Irrigation in Egypt and Italy*, 1887, and *Irrigated India*, 1893. These two brochures still have their place in irrigation literature, but the American report was a remarkable *tour de force*, the most famous official report ever presented by an Australian to an Australian Government.

Australians know the spectacular side of Alfred Deakin's public life—his triumphs at the Imperial Conferences; the glorious issue of his ten years' fight against State jealousies; his lofty eloquence when a united Australia was his theme; his noble enunciation of the great principles which he considered must form the foundation of the national life of the youngest nation in the world. But they scarcely know anything of the irrigation crusade which filled such a large part of his public life up to the early nineties, and was at once the test and proof of his practical statesmanship. Before long it is not too much to hope the full story will be told. Although he must loom largely in any account of the Australian work of George Chaffey, only the barest outline of his work as Victoria's most disinterested and far-seeing statesman is attempted in these pages.

"It seemed as if nothing could bring the country to a sense of the value of irrigation," wrote Alfred Deakin, in his little-known monograph, *Irrigation in Australia*, prepared in 1893. "Even the voice of an orator like Bishop Moorhouse, of Melbourne, seemed unable to rouse men from their lethargy. Very slowly has education increased, and action has been slower still." It was characteristic of the man that in his splendid survey of irrigation in Australia—incomplete only in so far as it ignored his own magnificent achievement in the cause to which he devoted himself—he forebore to mention that he himself was the man selected for the American Mission in 1883.

Nothing could be more fitting than that the actual words of the great Australian who made the first contact with the Chaffeys should be quoted in describing the circumstances which led up to the despatch of the Victorian mission to America :—

"The Australian awakening has come in the first place from the United States, where the marvellous multiplication of irrigated orchards has proved what we can accomplish in our similar climate with a similar soil, being of the same race, paying the same wages, and enjoying the same civilized life," he wrote in *Irrigation in Australia*. "The thoughtful and far-seeing ones are fast realizing that the limits to Australian expansion are chiefly those of its water supply. . . . A country in these latitudes dependent on the clouds for its supply, and subject to great variations in its rainfall, can never be heavily stocked, and can never be more than sparsely peopled, so that our national strength and national wealth are dependent upon the possibilities of the continent for the catching and storing of water, upon its underground flow and the use which is made of its rivers. The use of the land depends on the use of the water. The leadership in water supply belongs to Victoria . . . In the sixties advances from the Treasury began to be made to country municipalities to enable them to provide water for townships and for the mines by which they were supported. Some excellent reservoirs were constructed, but the decrease in the gold yield led to migrations of the population, which left some of the local bodies incapable of meeting the interest on loans. . . .

"In the Seventies, population pushed northward into the Murray Plains, where a series of wet seasons had bestowed abundant grass and flourishing harvests. Unwarned by earlier experience the settlers had made little or no provision for the storage of water, and, when the dry cycle began, lost not only their crops but many of their stock, and were put to straits in some parts to obtain drinking water.

In 1881, Shires as well as Borough Councils were authorized to form Water Trusts endowed with rating powers as security for State loans. The Government had employed Mr. Gordon (an Indian Engineer), and Mr. Black (Assistant Surveyor-General) to prepare plans showing how the districts might be protected against future water famines. Their leading idea was in the delta plains, to divert water from running streams either along existing effluent watercourses or by small artificial channels, so as to place a sufficient supply in all seasons within three or four miles of each farm. . . . This Act was largely taken advantage of, especially by country townships, for, although adopted by large areas, it was in almost every case with the desire that water should be used, not merely for stock and domestic purposes, but for irrigation. At first an effort was made to limit the application of funds strictly to the schemes of Messrs. Gordon and Black, but gradually a more generous policy was introduced, and one of the largest Trusts, the Echuca and Waranga, under the advice of its engineer, Mr. Stuart Murray, insisted on carrying its channel to the highest ridges so as to command the greatest area of country.

"In 1883 the new movement was first legislatively recognized by the introduction of a measure (brought in by Alfred Deakin himself) enabling trust areas to be formed for irrigation purposes governed by elected representatives, who should have power to rate and borrow in the open market as municipalities do, upon the security of their income, in order to construct necessary works. No actual work was done under this permission, although it entirely satisfied Mr. Hugh McColl, the originator of the irrigation movement in Victoria, and indeed in Australia. He had, for years, unsuccessfully endeavoured to arouse public interest in the matter, and had sought to float a company to undertake the construction of a canal from the Goulburn for irrigation and navigation combined. Later enquiries have since demonstrated that the route to the west, which he selected, is feasible for a considerable distance, and as a matter of fact, it has since been adopted on a much smaller scale for a portion of the way. Inspired by a study of the publications relating to the great works of English engineers in India, and of the splendid results obtained in California, Mr. McColl no doubt exaggerated the prospects of the particular enterprise which he took in hand, but later knowledge has in the main justified his forecasts, though during his life they were treated with ridicule by the public and by some professional men. The prominence of Victoria in the work of water supply is chiefly due to his unselfish and untiring advocacy. Before his death, in 1885, he had imparted such an impetus to public opinion that the question attained first place in Parliament and in ministerial policy."

This then was the position in Victoria at the end of the great drought of 1879-1884, when the silver-toned voice of Alfred Deakin was sounding throughout the State a clarion call to practical action :—

" About 1865 a large movement of population from the gold-fields to the country districts began. The Land Act of 1869 offered great facilities for taking up land. In 1870 the exodus turned northwards into arid districts, which the squatters had made people believe were quite unsuitable for agricultural purposes. In 1870 good rainfall gave a few settlers in the North good returns, and the years that followed were satisfactory, especially in 1875. The soil was found rich beyond anything supposed. From 1875 the rainfall decreased, especially from 1880 to 1882, and water had to be conveyed on the railway to preserve the lives of people settled in the arid districts. That condition forced upon the minds of all parties the conviction it was impossible that the arid districts should remain unsupplied with water, and at the mercy of those dry seasons which not only ruined the settlers, not only caused the loss of tens of thousands of stock, but actually threatened at many times the life and sometimes the health of the people."*

In 1883 Deakin took office in the Service-Berry Government as Solicitor-General and Commissioner for Public Works and Water Supply. He had been nominated for Cabinet rank by Graham Berry, Leader of the radical liberals, and, in the next Government, the Gillies-Deakin Administration, he himself succeeded to the leadership of Victorian radicalism, which, in spite of the great political power of the squatters, was a real and virile force in Victoria in those days, long before Labor Parties were thought of. In his first year of office, Deakin had the pleasure of submitting to Parliament the first irrigation law placed in the Statute Book of Victoria.†

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* Extract from speech by Alfred Deakin in introducing the Irrigation Bill of 1886.

† "The portion relating to irrigation was taken almost entirely from an Act which had been passed in California. At a later period I was able to ascertain that this Act, excellent as it was thought to be in California, was not actually effective as a law, having been disallowed by the U.S.A. Supreme Court. In that Act power was taken to enable residents of districts which were irrigable to organize themselves into what were called Irrigation Trusts, for the purpose of placing the water on the land. The body which was to govern the irrigation trust was to be elective and was authorized to mortgage the lands of the trust up to 70 per cent. of their value, but the money had to be raised in the open market, and from private capitalists. The Act also gave an opportunity to private companies to undertake irrigation works."—Alfred Deakin, reviewing the 1883 Act in his monumental speech on the Irrigation Bill, Victorian Legislative Assembly, June 24, 1866.

James Service was a far-sighted and sagacious Premier. Realising not only the importance of the gospel which his young colleague was preaching, but the rare gifts of the man himself, he decided to give Deakin a chance to bring down a comprehensive irrigation policy. The question was how should the subject be attacked ? No one in Australia had had any practical experience in the art of applying water on a large scale. There was practically no irrigation literature in the English language, Professor Murdoch assures us. The only possible course was to find out what had been done in irrigating countries where similar social ideals and conditions of living existed. There was only one such country—California.

In 1883 *The Argus* Proprietary had despatched the Agricultural Editor of its weekly, *The Australasian* (Mr. T. K. Dow), to California to describe irrigation there, and at about the same time David Syme's paper, *The Age*, had sent his brother (J. L. Dow, M.L.A., Agricultural Editor of *The Leader*) to the same State on a similar mission. Their reports, which excited great public interest, gave James Service his cue ; and there was precedent for what he proposed to do in the fact that the French Government had previously sent an irrigation expert to America on a mission of investigation. So the Government quietly made its plans and the prorogation speech of the Governor (Sir Henry Loch) in the Legislative Council on the last day of the Session, December 12, 1884, contained an announcement which, it can be said without exaggeration, changed the history of Victoria. Sir Henry Loch stated that a Royal Commission on Water Supply and Irrigation would be appointed immediately, and that its Chairman, a Cabinet Minister, would visit America to investigate conditions there. The name of the Minister was not mentioned in the Governor's speech, but the press announced next day that Deakin had been chosen.

By its choice, the Government paid this brilliant young lawyer, writer and speaker—he was then scarcely conscious of his extraordinary oratorical gifts—the highest compliment in its power. The 1884 Commission was the strongest ever formed in Victoria. The sincerity of the Government was shown by the personnel, which revealed that it was in no sense a political commission. In Australia the practice of appointing purely political commissions has too often proved a marvellously

futile and costly way of getting nothing done. But the Irrigation Commission was representative of the best available brains inside and outside of Parliament. The other members were :—James Campbell, M.L.C. (Vice-President) ; Charles Young, M.L.A. ; Walter Madden, M.L.A. ; James Shackell, M.L.A. ; George Graham, M.L.A. ; A. Black (a former Surveyor-General) ; W. H. Steel, A.I.C.E. (Inspector-General of the Public Works Department) ; Robert L. J. Ellery, F.R.S. (Government Astronomer) ; W. W. Culcheth, M.I.C.E. (a leading Anglo-Indian engineer) ; Thos. B. Muntz, C.E. ; Thompson Moore, M.L.A., and James Balfour, M.L.A. Added at various periods were George Young, M.L.A. ; John Rees, M.L.A. ; and J. L. Dow, M.L.A. Alfred Deakin, then only in his twenty-ninth year, was placed at the head of this combination of experienced public men and engineers. Never in Victorian history has a more striking tribute been paid to a man of his years. Stuart Murray, afterwards Chief Engineer of the Victorian Water Supply Department, and later Chairman of the Water Commission, was appointed Secretary.* The terms of reference authorized the Royal Commission

" *to make full and diligent enquiry into the operation and effect of the various schemes of water supply, and into the extent to which the present sources of water are utilized, with a view to ascertaining whether further and better provision can be made for the conservation and distribution of water for use of the people.*"

Ever prompt to action, Deakin left Melbourne for San Francisco via Sydney on Christmas Eve, 1884. The only

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* Stuart Murray, under whose direction the foundation of Victoria's State Water Supply system was laid, is another notable figure in Victorian irrigation history. Born in Dundee, Scotland, on October 9, 1837, he came to Victoria in 1855. He was appointed Secretary of the Royal Commission of 1884, and in June, 1886, Deakin, who had the highest opinion of his personal and professional qualities, offered him the post of Chief Engineer of the Water Supply Department. The appointment was made on September 6, 1886, and was retained by Stuart Murray until February 29, 1908. He was the Victorian representative on the Interstate Royal Commission of 1902 on the utilization and conservation of the Murray waters, and the monumental report of that body was in the main his work. In 1904 Stuart Murray drafted the Victorian Water Act of 1905, which removed all vestiges of local control, and effected complete centralization under a body called the State Rivers and Water Supply Commission, of which he became the first chairman, and Dr. Elwood Mead the second. He retired in 1908 from the service of the State which he had served with such distinction, and died on April 12, 1919, full of years and honor. (*Stuart Murray and Irrigation in Victoria*, by A. S. Kenyon (Engineer of the Victorian State Rivers and Water Supply Commission, 1921.)

official sent with him was a State engineer with Indian experience (J. D. Derry, C.E.), but he was accompanied by two of the ablest of Australian journalists—E. S. Cunningham, representing *The Argus*, now the Editor of that journal, which under his leadership has become one of the most influential organs in the British Empire ; and the Agricultural Editor of *The Leader*, representing the Syme daily, *The Age*. J. L. Dow, though not so brilliant a journalist as his gifted confrere, was a skilled, practical agriculturalist and a politician selected by Mr. Deakin in the next Government to become Minister of Lands. He had visited California a year or so before, and his experience proved to be of the greatest value to the Mission.

The party embarked at Sydney for San Francisco in the s.s. *Australia* on New Year's Day, 1885, returned to Sydney in the s.s. *City of Sydney* on May 10, and was in Melbourne again on May 12. During their absence, Deakin and his companions had travelled 26,000 miles, having examined the irrigation systems of California, Arizona, Mexico, New Mexico, Kansas, Colorado and Utah. Deakin also spent three weeks in the Eastern States. He was only eleven weeks on land, and travelled at the rate of 1000 miles a week, or 142 miles a day, including Sundays. This was surely remarkable work for those pre-automobile days, yet the voluminous report, which attracted world-wide attention, was ready for Parliament by the middle of June.

Deakin's *Irrigation in Western America* was a progress report of the Royal Commission. Apart altogether from its general importance as a contribution to irrigation literature, it showed the Victorian public conclusively that the colonization side at all events of Australia's irrigation education must be imparted by Americans. Deakin's report and those of the two distinguished journalists who accompanied him paved the way for the establishment of Mildura. They proved to Victorians that the only way to prevent the extinction of settlement in the dry areas was by irrigation and water conservation. It is not too much to say that the beneficial results of the American visit are being felt by Australia to this day.

Looking through the report it is apparent that the outstanding impression left on Deakin's mind was admiration of American irrigation methods. This is summed up in the following passage :—

"The most potent factor in the achievement of American successes is the untiring energy and self-reliance of the people, many of whom, unfettered by tradition, independent of professional men and original of idea, have conquered difficulty after difficulty and added device to device in a way which it would be almost impossible to equal under any stereotyped system or by means of any one organization, no matter how well qualified its agents or inexhaustible its purse."

Defining an arid area as one with a rainfall under twenty inches a year, Alfred Deakin found that two-fifths of the U.S.A., excluding Alaska, is arid.

"America was chosen," he proceeds, "because conditions there are most like our own. The rainfall is similar in California, which is a new country like ours, settled by gold seekers; the age is the same and the soil similar. In both water was first employed by miners and agriculture followed. The central portion is most like Victoria. . . . . The rich sandy loam of the Mallee offers a close parallel to the best California soil. Large areas of the Wimmera and Goulburn Valley are equal in fertility to the best soils of Western America. . . . Half of Victoria is in an arid area or sub-humid area. There is a little of what America would call desert land. The irrigated districts of Southern California are better and drier than any portion of Victoria. There it is always grassless, but in the country beyond Swan Hill, though the rainfall drops to ten inches and less, there is a fair crop of grass in many seasons. In Victoria enough rain is assured to materially decrease the quantity of irrigated water, and in exceptional years irrigation is unnecessary.

"River comparisons are unfavorable to Victoria. The Californian rivers run along ridges of plains which slope away from their banks, which is of the utmost value in irrigation. American river water carries much fertilizing sediment, and the California rivers are more numerous, better distributed and more easily tapped."

Deakin's pen became prophetic when it wrote these words which contain an exact forecast of the Mildura Irrigation Colony:—

"In Victoria there must be many places in which the rich soils of the northern plains and their splendid climate could be utilized so as to rival the finest Californian yields; all that is needed is the capital and enterprise of the purchaser of the site, and the small capital or persistent energy of the settlers upon twenty-acre blocks to illustrate the wealth of Victoria, under a system of intense culture. . . . . A settlement of even the 1,000,000 acres of irrigable land which lie in the Northern Watershed of Victoria, if undertaken under

judicious legislative and administrative control, should be the means of establishing there a prosperous and intelligent class of farming citizens. . . . .

" Whether the verdict as to the actual construction of works be given for State action or private enterprise, one thing is clear, and this is that the works ought to be constructed. If Victoria is to continue to progress in the settlement of her people upon the lands and the multiplication of her resources, by the conquest of areas hitherto regarded as worthless ; if she is to utilize her abundant natural advantages, bring her productiveness to the highest point, and secure to the agricultural population of her arid districts a permanent prosperity, it must be by means of irrigation."

His optimism is seen in this passage :—

" The first irrigators in California were met by just such warnings and predictions of inevitable failure as have been given currency to in Victoria. The settlers of Fresno, in referring to their early struggles, quote word for word the same despondent prophecies which have been current in this Colony. They, however, have lived to see them falsified by inexhaustible energy, patience and self-confidence."

Success if it did come surely in Victoria came slowly. "Control of water is an art which needs for its mastering the utmost caution and intelligence." Deakin wrote. He might have added the word "experience." But for the experience gained at the Chaffey Colony at Mildura, Deakin's elaborate State irrigation structure, at best a partial failure, might have collapsed, and in that case the irrigation era in Australia would have been postponed indefinitely. The early failures of State irrigation in Victoria were due mainly to the individual selfishness and lack of team work of many farmers, and the failure of the Irrigation Trusts to recognise their financial obligations. In 1893 Deakin wrote :—*

" Experience in Victoria has, so far, not fulfilled expectations. The local bodies, careless, if not extravagant, are always afraid to tax their own constituents, and fail to realize their responsibilities (to the State) as they would to a private mortgagee . . . Farmers have learned that mistakes are common at first, and that it takes time to manage the new agent. The Trust representatives consider, however, that the most serious difficulty is occasioned by the want of spirit among their constituents, each of whom waits until his neighbor makes experiments for him and, meanwhile, loudly

* *Irrigation in Australia.*

protests against being rated, though he uses no water. The last season or two, having enjoyed a fair rainfall, has encouraged the dilatoriness and parsimony of the less enterprising, and hence, the progress made in Victoria is not commensurate with the work undertaken.

"The progress made by the private enterprises at Mildura and Renmark, where no concessions from the State can be looked for, and where a picked population is settled, are evidences of what irrigation can accomplish. The weakest point yet discovered in the law is that which entrusts so large a share of authority to Trust Commissioners, who are always entirely dependent upon their officers for professional advice, and sometimes for general management also, who have little or no financial training, and who are ignorant of the most practical phases of the irrigation which they are called upon to control. The demands made upon them are considerably more severe at the outset than anything they have been accustomed to at the Council table of the local Shire, and indications are not wanting that in some instances the burden is becoming too much for those who undertook to bear it. In consequence the obligation is thrown upon the Department and upon the Trust officers who, between them, have a difficult task to face.

"Considering the novelty of the whole undertaking, the absence of serious blunders is not discouraging, and though it may be anticipated that experience will have to be bought, it does not yet appear that it will be highly priced. The test will come during the next six or seven years, after which it may be hoped that such minor amendments as the law and its administration require will have been made, and that the number of individual triumphs already recorded will have been multiplied and have led to a general adoption of scientific methods of watering."

The closing passages of Deakin's *Irrigation in Australia* are so characteristic of the man, so redolent of the passion for his native land, which was the inspiration of his life, that they must be quoted in full :—

"No country more needs irrigation than Australia, no country will more richly repay it, but it must develop its own system to suit its own circumstances. . . . Australia owed its immunity from annexation to the scanty attraction which it offered to seekers after spices or precious metals. The far-sailing Spaniard and his sturdy Dutch rival, the roving Portuguese and the ambitious Frenchmen, all of whom touched its shores, touched them only to pass contemptuously by. When Britain herself asserted her claim, it was to make of it a receptacle for convicts. By this means the unnatural sorrow and gloom of the prison house were imparted to the

history of its earliest years, and assisted for decades to deter the establishment of rival colonies. We owe it, therefore, not only to our distance from the Old World, but to the inhospitable aspect of our coasts, to the weird and grotesque character of their scenery, to the gloomy legends of interior wastes and the sad circumstances of our first plantations, that the continent has been reserved for Anglo-Saxons only. It is upon them that this great prize has been bestowed, not as a gift but as a guerdon. We have now learned that this new land veiled under a gaunt and graceless exterior an unexampled vigor and unsuspected potencies which the spirit and hardihood of its pioneers have dauntlessly evoked. The plant and the animal introduced into this virgin land would appear to have entered upon a long hoarded inheritance of vitality and prolific bounty. In some degree the same may be said of the settlers who were bold enough to explore and strong enough to subdue the wilderness. The Australia of to-day is in no superficial sense the creation of their skill and enterprise. Theirs has been the bloodless heroism of labor. Nature has proved more generous than her promise to the untutored eye, and has indeed surpassed the warmest anticipations. Countless flocks feed contentedly along vast plains which once appeared barren and desolate; abundant harvests are reaped from glades across which the aboriginal painfully sought his scanty meal, and out of the heart of once withered wastes have burst flowing rills that make channels bordered by verdure athwart stretches of aridity formerly shunned in drought—even by the kangaroo.

"The more we learn of our country the more we are led to believe that the first fearful impressions of its discoveries will all be falsified, and that energy, resource and perseverance will yet find ample scope and recompense in the collection, conservation and distribution of the waters of Australia."

The story of Alfred Deakin's meeting with George and W. B. Chaffey, which, more than any other single circumstance, contributed to bring about these great changes in the future of Australian arid lands, will be related in the next chapter.

CHAPTER VIII

THE ENCOUNTER

HIS meeting with George Chaffey at Los Angeles was the first fruits of Alfred Deakin's visit to America in 1885. This encounter was of such historic significance that every circumstance surrounding it is invested with interest.

It seemed to both the merest chance that they were brought together. Deakin did not work out his itinerary until he landed in America. All he knew about his plans when he embarked was that he was going to visit the irrigating States and Mexico. Details of the tour were purposely left unsettled until his arrival in California. But Providence, fate, destiny or chance, call it what one may, had laid down a path which was to take him to the office of George Chaffey in Spring Street. The result was to be the reclamation of desert areas in two continents.

Dr. Cunningham, the sole survivor of the Australian delegation, has been kind enough to describe to the writer his recollections forty odd years after, of that memorable meeting of which he was an eye-witness and an interested observer. His own words are quoted :—

" When we arrived in San Francisco on January 25, 1885, Mr. Deakin enquired about the most likely places to visit, with a view to gaining the practical information he was in search of. He was advised to visit Los Angeles and there to ask for the Chaffey Brothers, who were interested in irrigation enterprises in that region. We duly arrived in Los Angeles, which had, at that time, all the appearance of being a progressive town, but was so small that having just come from San Francisco we felt that we were in a country village. Having put up at a hotel, we at once went down the main street looking for the office of Chaffey Brothers, and about 300 or 400 yards down on the right hand side we saw it. The thing that struck us at that instant—it amazed and amused us all very much—was the fact that outside the office door we saw three sacks of eucalyptus seed marked with a sign which read something like this : ' Australian eucalyptus seed on sale here.' Seeing that in

THE VICTORIAN IRRIGATION "MISSION" TO AMERICA

photographed immediately after the arrival of the party in San Francisco, January 1885.

Alfred Deakin is the central figure. On the right (sitting) is J. L. Dow (representing *The Age*) and on the left is E. S. (now Dr.) Cunningham, who represented *The Argus*. Dr. Cunningham is now Editor of that journal. Standing behind Alfred Deakin is J. D. Derry, C.E., the engineer of the party.

From a hitherto unpublished photograph lent by Mrs. Deakin.

Australia no one bothered about eucalpytus seed, nor even imagined that it was marketable, this struck us as a most remarkable and felicitous circumstance.

" We went inside and found George Chaffey there. We at once thought : What a clear-sighted, handsome, well-set up man this is. He just personified that quality of determination and practical mindedness and enterprise that could not help but impress anybody, and that feeling was heightened by the cordiality with which he received us. I think he accompanied us on some of our explorations of the irrigation settlement in the immediate neighborhood. I know he helped us in a thousand ways to get an understanding of what the problems were. He told us that if we wished to see what was regarded as a model irrigation settlement we should stop off at Ontario on our way East, where his brother and he had established a settlement still in its initial stages. His brother would be able to show us all that had been done to put the colony on a firm basis, he said. That was just what we wanted to see. We, therefore, gladly fell in with his proposal. He promised to write to his brother and tell him we were coming. Accordingly, Messrs. Deakin, Dow, and myself went to Ontario, and there we met W. B. Chaffey, a man of quite a different type physically. George had a square full black beard and was a well-set-up man. W. B. was of spare build—but one who had all the appearance of being full of purpose and determination."

We have here the evidence of the one surviving Australian witness that the brilliant and ambitious engineer, and the keen business man, his brother, made a profound impression on Alfred Deakin and his party. Here was an ideal combination to undertake the irrigation of the dry region of Northern Victoria on which Deakin had so set his heart; to teach Victorians the complicated art of establishing settlement on arid soil—two irrigators of proved skill and enterprise with the supreme qualification of high-class achievement in California, for Alfred Deakin had made up his mind long before he wrote his report that Western America was the only country from which Australia could learn irrigation colonization. Certainly the Chaffeys were in his mind when he wrote afterwards :—

" The alert, inquisitive, intelligent, restlessly-inventive and progressive Americans multiplying their machines and devices every year, bringing to their aid all the resources of scientific discovery, and to the management the keenest commercial spirit, are likely to be our masters in this regard for a long time to come. . . . .

" The stalwart men, high-booted, Garibaldi-shirted, with wide-brimmed hat and long-handled spade, independent, upright, courageous, thoughtful, self-reliant and well-mannered, who may be seen in the orange groves of Pasadena or Los Angeles, are of a type to which we may turn with confidence, and which we may hope to acclimatize on our own shores. . . . "

It was natural in the circumstances that, after seeing Ontario, the same thought should leap simultaneously to the minds of the Australians : *What a wonderful thing it would be for Victoria if we could get these two men to teach us irrigation !* Still it seemed too much to hope that two such men could be induced to forsake golden prospects in California for a strange country so remote and so little known to the outside world.

On the other hand the impression made by these pleasant-mannered Australians with their strange way of speaking English, and their searching questions, asked without embarrassment or self-consciousness, was equally pronounced. Both brothers wondered what kind of a country this could be which could produce such men and send them half-way round the world for information. Here was a vast almost uninhabited country, with a climate much like California, they were assured, and presumably, with vast areas of land to give away in return for big developmental schemes. The presence of the tall young silver-voiced politician and his companions were evidence alike of this Austral *El Dorado's* affluence and enterprise, and of its interest in irrigation. This is how George Chaffey viewed the matter.

From Deakin he learnt of Australia's greatest river, the Murray, a stream comparable with the Nile and the Colorado ; it and its tributaries flowing uselessly into the ocean through an arid, almost uninhabited basin nearly one sixth the size of the United States. Deakin's eloquence in describing the possibilities of irrigation in the Murray Valley fired George Chaffey's ardent imagination and inspired him with a dream of inaugurating the irrigation era in Australia.

It was unfortunate for him in a sense, but fortunate for Australia, that he visualized a country like the United States possessed of thousands of square miles of superfluous land, eager to give it away in grants to those who would undertake to open up undeveloped regions. It was impossible for an American of those days, almost impossible for an American

of to-day to imagine a country which preferred to keep its lands locked up, lying useless, rather than give away an infinitesimal proportion in return for railway construction or other great developmental enterprises ; to realize the jealous hostility with which a large class of Australians regarded any proposal involving alienation of the public estate—"giving away the national heritage" was a cant way of describing any such proposal. This feeling largely originated in resentment

ONTARIO AS THE AUSTRALIAN MISSION SAW IT.
The house on the left is that in which the suggestion was made that the Chaffeys might establish irrigation colonies in Victoria.

From a picture kindly supplied by Dr. E. S. Cunningham.

against the often lawless appropriation of the choicest lands of the State by squatters in earlier days. However, had George Chaffey not thought of Australia in terms of land grants, the Chaffeys would never have seen Mildura or Renmark.

So there arose in the minds of the three Australians—Alfred Deakin, E. S. Cunningham, and J. L. Dow (Engineer Derry was not with them when they met the Chaffeys)—the at first unspoken thought that these remarkable Canadians would be the ideal people to introduce scientific irrigation into Australia. George Chaffey, obsessed by the land grant will-of-the-wisp, and deeply impressed by Deakin's visions of an irrigation era

in his beloved Victoria, gave the matter much thought after the meeting at Los Angeles—he did not see Alfred Deakin again till his arrival in Melbourne early next year. W. B. Chaffey, too, was moved to think on similar lines by a semi-jocular remark, yet one with a grain of seriousness too, made by one of the Australians during their visit to Ontario. The interesting question then arises: Who first put into words the suggestion that Australia might offer a field for Chaffey enterprise? The evidence shows that this distinction belongs to Dr. Cunningham, and the remark which had such important results was made in Chaffey Brothers' office, near the Southern Pacific railway depot.

Giving evidence before the Mildura Royal Commission eleven years later, Deakin thus described his recollections of the incident:—

In conversation with them (W. B. Chaffey and his brother, Dr. Elswood Chaffey) that evening, when waiting for the train, someone asked what they were going to do when they finished with Ontario. They said they thought they had now sufficient experience to start on something very much bigger than that, and they had been considering a variety of places. I would not be sure if they said they had been considering Australia among others, or whether one of our party said: "Have you considered Australia?" and Mr. Chaffey laughed, and said: "It might even come to that," or words to that effect, treating it apparently more as a jest than anything else. The conversation went on without dwelling further on the point. I had no idea in my mind of any such contingency being practically contemplated, and after we left, when Mr. Dow and Dr. Cunningham said: "What a splendid thing it would be to get such men to start a similar settlement in Victoria," I cordially concurred, but none of us had any anticipation it would ever be realized.

Dr. Cunningham, who throughout his long career has been noted for a really extraordinary memory, after describing the tour of inspection of Ontario conducted by W. B. Chaffey, states:—

"Afterwards we sat in the office and talked over what we had seen while waiting for the train. Chaffey was very interested in Australia. I said to Deakin, if I remember rightly: '*What a splendid thing it would be if we could only get these two fellows to come to Australia and show us how we should begin on our scheme of irrigation.*' W. B. Chaffey laughed at the suggestion. We thought no more about it at the time."

Dr. Cunningham's suggestion fell on fertile soil and bore abundant fruit.

Apart altogether from the impression caused by their actual achievements, Alfred Deakin was greatly attracted by the personalities of both brothers. Dr. Cunningham says of W. B. Chaffey :—

" It amazed us that a man scarcely out of his teens could so personify that American determination to do things."

As for the irrigation and colonizing record of George Chaffey and his brother, we have the assurance of Alfred Deakin that the party was " more impressed by Ontario than by anything seen in America."* Ample evidence of the Australians' admiration for Ontario is found in Deakin's report to the Victorian Parliament on his American visit, in his evidence before the 1896 Royal Commission, and in the despatches forwarded from America to their papers by Dr. Cunningham and J. L. Dow.

Deakin gives, among other eulogistic references, the following description of Ontario in his *Irrigation in Western America* :—

". . . . . At Ontario (one of the Messrs. Chaffey's colonies) the proprietors have laid out nearly £100,000 upon 8000 acres of land bought at 28s. an acre ; of this sum about £10,000 was spent upon head works for the water supply, which is conducted in 26½ miles of cement pipes to the corner of each ten-acre allotment, and in 3½ miles of iron pipes to the township for domestic purposes at a cost of over £10,000. More than £20,000 in land was given to establish an agricultural college now built in the centre of the settlement, nearly £4000 spent in planting trees and making streets, and £700 in securing a railway station. There is a double avenue running through the colony seven miles long in a straight line and 200 feet wide, planted with eucalyptus trees, and intended to contain a cable tramway, and the masts from which will be suspended electric lights run by hydraulic power. Over £7000 was spent in advertising this colony, and the result is confidently awaited. Many persons weary of city life are drawn from the New England States, while numbers are attracted from the Old World by inducements held out to them. The Colony enterprise has many advantages for those who engage in it. To join in it does not imply so great a trial as that of facing the wilderness with no neighbor less than miles away. It permits of society, of the establishment of schools, churches and libraries,

* Vide his evidence before Mildura Royal Commission, 1896.

and the enjoyment of comforts which cannot be secured in isolation. It furnishes, in fine, a framework for commercial organization and the beginnings of local government. It appeals, too, to a larger class than that usually drawn to agriculture. The physical labor required is not so severe, there is more scope for intelligence, and it offers remunerative employment for a small capital."

Deakin told the Royal Commission on Mildura that while in Los Angeles in 1885, he heard the Chaffeys spoken very highly of by the irrigation engineers and others consulted. They were known as prosperous and able irrigation colonizers. They were highly praised by everyone for their success.

" That visit to America was undertaken in one respect under unusual circumstances," Mr. Deakin proceeded. " I was accompanied by two of the ablest press men in Melbourne, who saw everything I saw, heard everything I heard, and had every opportunity which I had. These gentlemen reported in advance of my report direct to their own papers and, through them, to Victoria, as to what we actually learned. I will call your attention to the first reference to the Chaffeys, which as far as I know, ever appeared in print in Victoria. It is in *The Argus* of April 15, 1885, and there are one or two sentences which show the impression then made on Dr. Cunningham. . . . . He concludes by saying : ' It is indeed a grand project.'* That is valuable evidence because it shows the impression made at the time, not on me but on a reporter of great capacity. *The Age* report is in some respects more interesting, because this article, being Mr. Dow's, is the article of a trained farmer, who, in addition to being a reporter, as Dr. Cunningham

* The article which Mr. Deakin spoke of is of such historic interest in being the first Australian newspaper reference to the Chaffeys that it is here quoted in full :—

"A very pleasant afternoon was spent at the infant settlement of Ontario. It lies on a section of the desert which extends for miles east and west, and, until we were right on to it, there was no expectation that any such place was at hand. The surprise was great when we left the cars and found ourselves under the guidance of Mr. W. B. Chaffey, who with his brother established this colony two years ago. They are Canadians of long experience on land settlement, and possessing foresight and determination conspicuous even in this country of smart men. Old grazing land was purchased at the foot of the Sierra Madre range near the point where a river is discharged from a canyon, and the estate which they acquired had an area of 8000 acres. For this they paid an average of 28s. an acre, an advance of 18s. on the original Government price, and now, after their irrigation scheme is well advanced, the price is about £40! Having acquired the property, they had it surveyed into ten-acre blocks, reserving a small area for a town. They secured the right to half the water in the canyon under the old Mexican law of appropriation, which is in force in California. This gives the first appropriators of water from a stream a prior right to what they require, and it was the rights of some old-time graziers that the firm acquired. They then laid down 26½ miles of cement pipes to irrigate the whole settlement. Upon this work upwards of £8000 was spent, and the result achieved was that water for cultivation purposes

was, had spent his life in agricultural and pastoral pursuits, who had visited America before and who had seen what were supposed to be the best achievements of irrigation in America. He therefore came to it not as a novice but as a trained agriculturalist experienced in irrigation. This is in *The Age* of Saturday, May 2, 1885. The heading is : ' A Model Irrigation Colony.'*

"These two brothers," he says,"the elder not above forty, impress me by their high-class business capacity, an impression strengthened by what they have done in the last two years." . . . Both articles not only praise Ontario, but they bear testimony to the standing the Chaffeys had acquired. Both Dr. Cunningham and Mr. Dow considered Ontario was in every respect a model irrigation colony, and both said to me : *' It would be extremely fortunate if we could get such a colony started in Victoria.'* "

George Chaffey was interested in an antimony mine in San Emidio Canyon, near Bakersfield, which he frequently visited about the time Deakin came to America. Shortly before the meeting with Alfred Deakin at Los Angeles, a man destined to play a conspicuous, if not a notable or worthy part, in the establishment of Mildura, had come to Bakersfield looking for work. A coincidence that made an impression on George Chaffey's mind was the fact that he proved to have been in Australia. This was Stephen H. Cureton. He was a common type in California, and in Australia too, in those days.

* To J. L. Dow must be conceded the honour of being the first to write of Ontario as " the model colony." He was prophetic because, as we have seen, the U.S.A. Government, about twenty years after, selected Ontario as the model irrigation colony of the United States.

was turned on to the highest point of each block. In addition laminated iron pipes three-and-a-half miles in length were laid for domestic supply, at a cost of £2000. They are now tunnelling below the canyon for an extra supply, and have penetrated 2200 feet at a cost of £6000. From this work they have already obtained £40,000 worth of water, which is to be used when the area of the colony is extended. There is not much fear of the unalienated land in the neighborhood which they propose to buy rising in the meantime, because it is almost worthless without the water, and they have made themselves possessors of the only water that can be turned on to it. Upon the estate already acquired they run one miner's inch of water *per annum* for every 10 inches, about 40 inches making a cubic foot. Another important work has been the laying out of a grand avenue seven miles in a straight line from the railway to the mountains and 200 feet wide. It divides the colony into equal parts, and all cross roads are at right angles. This magnificent tangent is planted with eucalyptus trees, palms, and the *Grevillea Robusta*, or Silky Oak, called here the Australian fern. It almost took one's breath away contemplating the vista. And in order to make the place more attractive, the proprietors donated blocks of the town and farm lands estimated to be worth £20,000 for the endowment of a college, which was being erected when we visited the settlement. This much has been actually accomplished, and what is proposed to be done is quite in keeping with the magnitude of the

Adventurer, gentleman-ne'er-do-well, he was a rolling stone, a rover who had been knocking around the world for many years meeting with strange successes and more accountable reverses of fortune. Endowed with natural ability, education and up-bringing, the strain of restlessness in him had made him a wanderer. One year a man of some standing in a community in the middle of which he had dropped as if from the clouds, and able to cut a presentable figure in social life, the next year might find him engaged in hack work for some newspaper, or doing manual labour in a primitive mining camp.

Cureton had spent one of his prosperous periods in Australia, and had there contrived to meet several people of consequence. A turn of fortune's wheel found him stranded in an obscure town in California. He was a clever, persuasive talker, and was fortunate enough to engage the interest of George Chaffey, whose broad human sympathies made him rather vulnerable to men of the Cureton type. Accustomed to meeting on the Lakes and in California men who had been victims of the most grotesque strokes of fate, George Chaffey allowed himself to be deluded into the belief that Cureton was something better than he really was. It was a rather unfortunate association, as after events proved, but all men have their uses, and Cureton's guile served the purpose of stimulating George Chaffey's

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scheme. Every quarter of a mile is to be marked by electric light, and the grand avenue is to be traversed by a cable car track, the motive power for both to be supplied from the canyon tunnel. Up to the present the total outlay has been £85,000, and when the enterprise is thoroughly matured and the property has been all disposed of, the brothers expect to realise £40,000 each.

The project involved the sale of all the property at convenient opportunities, and when it was well started, means were adopted for obtaining settlers. The Chaffeys looked to the East for wise men to take up their land — to the East where the winters were severe and property dear; and in order that the inducements might be well known, about £6000 was expended on advertisements and pamphlets. The wise men came West, and there are now 3000 acres under private ownership occupied by 85 families representing 450 people. The first furrow was not cut until two years ago, so that when we drove along the avenue, we were able to see what a settlement with the prospect of a great future looks like in its infancy. The water was not visible, because it was carried underground. This is the most approved system, preventing waste and preserving the roads from inundation.

The projectors had had experience of the difficulties arising in other colonies where the water is controlled by companies often antagonistic to the growers, and they decided the purchasers should be partners in the water supply by making them an incorporated company, reserving for themselves one share for each tenth of an inch of water supplied. Under this arrangement no one is expected to make a direct profit; that is to say, the company is not to pay dividends. Ultimately the water will cost almost nothing. Even now the colonists pay 2s. an inch a year only. This is sufficient for ten acres.

interest in Australia. He certainly was an important link in the chain of circumstances which took George Chaffey across the Pacific.

Cureton, who had represented himself as a journalist of great influence in Australia, possessed a particularly glib tongue and the ability to recount interestingly his many strange adventures. At San Emidio he often held the Chaffey boys, Andrew and Ben, fascinated with his wonderful tales of the mysterious Southern land—of mythical bunyips, of corroborees, of adventures with emu, kangaroo, dingo and brumby, and of the magic of the Australian bush.

When George Chaffey returned to San Emidio a day or two after meeting Alfred Deakin, he, naturally, closely questioned Cureton about Australia and the prospects of irrigation there. Cureton seized his cue and presented a glowing and, for the most part, highly imaginative, picture of the opportunities for making untold wealth with but a moderate amount of capital. He spoke of the noble Murray, nearly 2000 miles long, Australia's Father of Waters ; on either bank, land which would "grow anything." Shrewdly divining what was in George Chaffey's mind, he laid stress on the certainty of a huge land grant to anyone who would introduce irrigation there. Cureton boldly represented himself as able to get in

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The Riverside people pay much more than that. The shares, which gradually fall into the hands of the Chaffeys, will be sold to the purchasers of the outside land, which will thus have an enhanced value. One other example will show the spirit which pervades this enterprise. At the head of the avenue, near the foothills, is a natural elevation, a *mesa* as it is called. This eminence commands a splendid view of the surrounding landscape, and under ordinary circumstances might have been included in a farm block. But the firm has no intention of disposing of it for that purpose. They say it is the choice spot of the settlement, and should be suitably adorned. To that end they are prepared to give it away to anyone who will undertake to erect a mansion to cost about £10,000. That is indeed a grand project.

The cultivation which has taken place is confined almost to vineyards and orchards. There is so great a demand in the East for oranges that the growth of that fruit has become a very popular and profitable undertaking on the coast. Ontario is to be no exception to the rule. Some of the young trees were just showing their first fruit when the settlement was visited. In a season or two the growers will receive a return. They find no necessity for irrigating in the winter, and in summer the water is run down the trenches about once every 60 days.

There is one other word to be said in conclusion about this settlement. In the town there are to be no bars nor saloons for the sale of intoxicating liquor. There is a special provision in the sale of every allotment in that area. As a community, California seems to be infinitely more sober than Australia ; at any rate we have not seen six drunken men since we landed.

If the Ontario projectors think prohibition necessary, what would be their feelings if they made a similar venture in our country ?

touch with leading Australian public men if it were proposed to open negotiations.

George Chaffey was surprised and delighted to find, on mentioning the matter to his brother and partner later, that Dr. Cunningham's suggestion had germinated in the mind of W. B. Chaffey. After long consideration the brothers resolved to send Cureton to Australia at their own expense to sound Deakin on the prospects of getting a grant of land on the Canadian and U.S.A. system, *i.e.*, a free grant of a specified area in return for the establishment of an irrigation colony on the lines of Ontario.

Cureton arrived in Australia about the end of 1885, and at once got into touch with Alfred Deakin, representing himself as a member of the firm of Chaffey Brothers, which he certainly was not. Deakin, overjoyed at the prospect of seeing a Chaffey colony established in Victoria, gave Cureton a cordial reception on learning that he had come out on behalf of the brothers.* Though he did not like Cureton, he did not disguise his delight at his mission. Deakin certainly did not hold out the slightest prospect of a grant of the nature hoped for by George Chaffey, knowing full well that even if he had been favorably disposed himself to such a proposition, public opinion in Victoria would make it impossible. Cureton, without delay, positively assured George Chaffey that unlimited land and possibly a cash bonus could be obtained from the Victorian Government in return for the introduction of scientific irrigation. Misled by his not over-scrupulous agent, George Chaffey decided to come out to Australia and negotiate with Deakin for the establishment of a Chaffey irrigation colony. He left Los Angeles on January 11, 1886, and sailed from San Francisco for Sydney on the S.S. *Mararoa* a few days later.

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* Returning to Victoria, I presented, as in duty bound, a report of what I had seen, and did not fail to dilate upon the advantages of the colony system. It was with some considerable surprise that, a few months afterwards, Mr. Cureton presented himself to me, with a letter of introduction from Mr. George Chaffey. He was anxious to look over Australia generally, and see if there was anything they could annex. I said I did not see how the Government could very well enter into a compact with them, as most of the land had already been alienated to selectors; that a special Act of Parliament would be necessary, and that I was afraid no such area as 50,000 acres could be obtained with a water-right worth having. At that time the possibility of an irrigation settlement in the Mallee had never passed before my mind; for, though I had seen what Americans had done in similar deserts, I did not think they would attempt it in Australia.—Alfred Deakin speaking at Mildura on June 28, 1892.

After the departure of George Chaffey for Australia, the younger brother was left behind in full charge of Ontario with power of attorney. He, too, had become infected with the lure of Australia, and he waited impatiently for the expected summons from George to join him in the grand scheme which he knew his brother had in mind. Before many weeks had passed a cable arrived from Australia instructing W. B. Chaffey to sell the Ontario interests. Unfortunately, he was in such a hurry to reach Australia that he virtually gave them away ; and George was unpleasantly surprised to find on the arrival of his brother in Melbourne towards the end of the year that, instead of the substantial sum he expected, he was left in the position of having little capital to inaugurate the great project on which he had set his heart. The Ontario interests had been disposed of for the proverbial song to a company specially formed for the purpose. W. B. Chaffey's imagination pictured Australia as a veritable *El Dorado*, and he hastened at all cost to get there.

The Chaffeys thus sacrificed almost everything to come to Australia, for during the great boom in Southern California, which lasted from the middle of 1887 to 1889, their interests at Ontario would have realized upwards of $500,000. W. B. Chaffey sold out lock, stock and barrel to the Ontario Land and Improvement Company composed of Messrs. H. L. McNeil, G. L. Stamm, D. McFarland, of Los Angeles ; Col. O. L. Picher, of Pasadena ; G. C. Hager, of Orange ; F. G. Gissing, of Toronto ; Milton and Lyman Stewart, of Titusville, Pa. ; C. E. Harwood, of Springfield, Mo. ; and Chas. Frankish, who was manager and resident agent. Several members of the company became residents of the colony, and at once began to improve their lands.

The announcement that the Ontario colony lands had been sold to the new company appeared in *The Ontario Record* of March 17, 1886. In its next issue, dated March 24, this journal stated, editorially :—

" We say in all sincerity, and we believe it to be the sentiments of the citizens, that no colony in Southern California owes as much to its founders as does Ontario. . . . . The plan on which the tract was laid out, the avenue, the water works, the college, are enduring monuments of liberality and foresight."

On May 5, *The Record* added :

" Much praise is due to Chaffey Brothers for their extended liberality and enterprise, which certainly have not been equalled in the history of the foundation of any other colony in Southern California."

The esteem in which the Chaffeys were held personally at Ontario was shown by the public farewell tendered W. B. Chaffey by citizens later in the year. At that function an illuminated address presented by leading townsmen, stated :—

" Prior to their (Chaffey Brothers) undertakings at Etiwanda and Ontario, these areas were almost a barren waste. In four or five years hundreds of thousands of dollars have been spent in the planting of trees and many miles of substantial stone ditches and pipes carrying mountain water over the valley, and the result of their belief in the future of the colony evidences clear judgment combined with an amount of pluck which we hope will stand you in good stead in your Australian operations."

The speeches were all most eulogistic. According to *The Record*, L. S. Dyar said :—" It is sufficient proof of the wisdom of Chaffey Brothers that all colonies started since Ontario have adopted its leading features." An Editorial Note stated : "Chaffey Brothers have left in the model colony a monument that will remain long after the address given them. It remains for us citizens of Ontario to finish the work in the spirit of liberality in which it was begun."

When, later in 1886, the news of the enterprises projected in Australia by the Chaffeys reached Southern California, *The Ontario Record*, after describing the Mildura enterprise, added :—

"Southern California will suffer great loss in these two enterprising young men ; but we are glad to give to a country new in the experiment of irrigation colonies two so able and energetic representatives of Southern California push and success. The colony which they founded has been in many respects the model for all since started in Southern California, and is now to become the pattern of similar enterprises on a still larger scale, at the Antipodes. Ontario, with its beautiful homes and orchards, its noble avenue, munificently endowed college, and splendid water system, is a monument to the Chaffey Brothers that will always speak loudly in their praise, and the influence of their enterprise and liberality has been felt all through Southern California.

"In starting Etiwanda and Ontario they did more in advertising the resources of Southern California in the East, in giving a wide circulation to immigration literature than, we think we may safely say, any other colonizers in this part of the State. They did a great work in inducing immigration which benefited not only their own colonies, but all Southern California. They showed a public spirit and energy that will make them gratefully remembered in all this part of the State. Speaking on behalf of the colony whose model features they planned, we bid them God speed in their new field."

It says much for the public spirit of the new company that Ontario was developed after the departure of the Chaffeys in the noble spirit in which it was conceived, and Ontario to-day is a city beautiful, possessing all the advantages, economic, social and educational, that George Chaffey planned for it.

CHAPTER IX

THE ADVENT

GEORGE CHAFFEY sailed from San Francisco by the R.M.S. *Mararoa*, which left on January 17, 1886, making her first voyage southwards, and arrived at Sydney on Friday, February 12. His arrival in Melbourne is thus recorded by *The Argus*, of Tuesday, February 16, 1886 :—

" Mr. George Chaffey, an American engineer, and principal member of the firm of Chaffey Brothers, who have carried out several large irrigation schemes in different parts of California, arrived in Melbourne on Saturday (February 13). . . . Mr. Chaffey yesterday had a preliminary interview with Mr. Deakin, the Chairman of the Water Supply Commission, who met him in California last year."

Although he lived in modest style, first at the Victoria Coffee Palace, in Collins Street, and later at the then newly-erected Grand Hotel, in Spring Street, the impression speedily gained ground that George Chaffey was an American capitalist of unlimited wealth. Cureton was responsible for this unfounded rumor, and so the engineer was embarrassed to find that no one would take him at his face value. The position was an anomalous one, for, as he explained to Deakin, though he possessed some resources, his role was simply that of an engineer and colonizing expert, who had come to Australia to promote irrigation schemes out of which he expected to make money, while inaugurating a new productive era in Victoria. Incidentally, it may be remarked here that Cureton's foolish over-insistence in the early stages on what might be termed the public-spirited and idealistic side of the Chaffey's Australian irrigation colonies, caused much harm in later days, when a combination of adverse circumstances threatened their extinction.

Mrs. Chaffey and the boys followed in September, 1886, in the S.S. *Alameda*. Among her *compagnons de voyage* was one

Dr. L. L. Smith, a member of the Victorian Assembly. This worthy, while abroad, had heard an awful and incredible rumor, that a large slice of Victorian territory was to be granted to an American named Chaffey. Dr. Smith, a time-serving politician, professed great indignation at this, and frequently bragged in the hearing of Mrs. Chaffey that he would never consent to any grant to "these Yankees." He was as good as his word on this occasion, and proved a most implacable enemy of the project when it came before Parliament. Dr. Smith was interested in the phylloxera problem, and was returning to Australia after a trip undertaken to inquire into the latest methods of dealing with the pest. It was a coincidence that this same man had some few years previously tried to obtain a grant of land which formed part of the Mildura area, afterwards acquired by the Chaffeys.*

After the arrival in Melbourne of his wife and family, George Chaffey leased a house in Park Street, St. Kilda, for some time before going to live in the Murray Valley. His first office in Melbourne was in the Commercial Union Assurance Building, in Collins Street, nearly opposite Scott's Hotel. Later he leased two floors of the old T. and G. Building, at the north-east corner of Swanston and Little Collins Streets.

George Chaffey was immediately impressed with the irrigation possibilities of Australia, and with the courageous pioneering spirit of its people. "I loved Australia as soon as I saw it, and the deep affection which it and its people inspired in me will remain while I live," he told the writer last year. Melbourne in 1886 had already been carried away by the great land boom which burst in 1890-91. Intoxicated with the phenomenal prosperity of the past quarter century, its people, when George Chaffey came on the scene, were manifesting the first symptoms of that delirious speculative fever which has left its scars on the city to this day, causing so many to

* The genial Doctor was a well-known figure in Melbourne life, into which he pushed himself as art connoisseur, gourmet and retailer of smoking-room yarns. He was for a time interested in the wine trade, and produced the first Australian champagne, the notorious "Creme de Bouzy." His connection with mining, particularly the workings in Gippsland, was not profitable either to himself or his partners. He was typical of the times following upon the gold rush era.

shake their heads mournfully when "the Boom" is mentioned.* But Melbourne reminded George Chaffey more of Canada than of the United States, because of its intensely British complexion. He rejoiced at the prospect of finding congenial scope for his activities among Britons once more. His advent was hailed with enthusiasm by press and people. He was interviewed, entertained, feted and toasted on every hand. Deakin not only placed the facilities of the Water Supply Department at his disposal, but introduced him into circles which otherwise would not have been accessible to a newcomer. He became a prominent Clubman, a member of the Yorick and Australian Clubs, where he met leading citizens who showered hospitality on him.

It was a period of lavish, even prodigal expenditure and display. Money flowed like water. There was no thought that the miraculous prosperity would, within a few years, contract almost to vanishing point. Everybody wanted to see the money kept circulating. The irrigation expert was hailed as one about to add volume to the golden stream of expenditure, as indeed he did, and he was assured on every hand that unlimited capital would be forthcoming in London and in Australia if he proposed to float a company to carry out his colonization project. W. B. Chaffey, too, had the same experience when he arrived nearly a year later. The personalities of both brothers appealed strongly to Australians, and they won without an effort an enormous popularity, quite independent of the

* The Boom is still spoken of with awe by Victorians. From 1885 to 1891, the State witnessed what Henry Gyles Turner in his *History of the Colony of Victoria* (Longmans, Green and Company, London, 1904), describes as a "Carnival of extravagance and luxurious living." An unprecedented outbreak of the gambling spirit caused a reckless multiplication of credit. From 1885 to 1891, £38,000,000 of borrowed money was introduced into Victoria which then had a population of under 1,000,000. On January 29, 1888, the operations of the Melbourne Stock Exchange exceeded £2,000,000. Most of this business was transacted in Broken Hill shares.

On June 17, 1890, Premier Gillies introduced into the Assembly a railway bill for the construction of 43 country and 10 suburban lines, estimated to cost £8,000,000. That was in addition to 57 lines already approved, and private members' proposals for 2950 lines of railroads estimated to cost £26,000,000. Mushroom building societies and financing institutions sprang up in the metropolis. In 1885 there were 62 building societies in Melbourne. These, for the most part, conducted their operations in a most reckless way, and their failure when the reaction began in 1891, caused a vast amount of personal distress. Victoria had made the pace too hot to last, and in 1893 there was an appalling reaction and a great banking disaster which involved thousands in ruin, and have left their mark to this day.

great interest naturally aroused by their irrigation plans. It was no wonder that this flattering reception proved a little intoxicating to the two strangers. Dr. Cunningham, a keenly interested but detached observer of all that was going on, puts it thus :—

" The trouble was that the Chaffeys were spoiled by the remarkable reception they got in Melbourne, and were tempted to launch out on too large a scale. We were working up to the great land boom, and they became infected with the spirit of the time. People made so much of them that they were carried off their feet."

From February to October, George Chaffey was more or less continuously in negotiation with Alfred Deakin at the Water Supply Department, seeking a land grant for the irrigation colony which he had made up his mind to establish in Victoria. He had come to Australia expecting to get land almost on his own terms, but he was quickly disillusioned by Deakin. He was assured that though it would be possible to obtain a large area of land for a *bona fide* irrigation venture, the grant must be subject to the most stringent conditions and to continuous supervision. Here a tribute must be paid to Deakin's zeal and public spirit, for though he was on the most friendly terms possible with George Chaffey, and remained so through thick and thin, through good and ill, he drove the hardest possible bargain. The agreement ultimately arrived at could not have been more stringent if he had entertained the most suspicious instead of, as was actually the case, the most favorable opinion of George Chaffey as man and engineer.

"All the preliminary negotiations were conducted by me with Deakin alone," George Chaffey assured the writer.* "In all our troubles afterwards, in spite of great political pressure, he never once departed from the spirit of our negotiations. He was no fair-weather friend. It is a happy memory for me that throughout all our difficulties our pleasant relations were uninterrupted. Yet he drove a devilish hard bargain with me," he added ruefully.

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* "It was about the end of 1885 that Mr. George Chaffey arrived, and suggested that Mildura would be the proper place to commence their operations. We entered upon negotiations. On the part of the Government I was the negotiator, and Mr. George Chaffey acted on the part of his firm. We drew up the first agreement, which was signed by Mr. George Chaffey and myself. This was submitted to Parliament, and a bill was presented with it, authorizing the establishment of the colony." — Alfred Deakin, speaking at Mildura on June 28, 1892.

George Chaffey's spirits were dashed by Deakin's frank declaration at the outset that he must not expect in Australia, and particularly in Victoria, any liberal free and easy American methods of making land grants. Deakin, seeing that his candor might be fatal to their mutual plans, then suggested that George Chaffey should visit the Murray country and investigate its suitability for irrigated settlement. Chaffey decided to see the country first instead of returning to America forthwith as he felt tempted to do. He went to Echuca by train, travelled down the river to Swan Hill and returned to Melbourne filled with enthusiasm for the Murray Valley. He told Mr. Deakin on his return that if Government land could be made available along the Murray he would stay. Deakin assured him the Government would grant him up to 250,000 acres of Crown land for irrigation purposes on a concession-*cum*-purchase basis. George Chaffey, relying on Deakin's good faith, immediately cabled his brother W. B. to join him.

This prompt, if not rash, decision was surprising in view of the wonderful prospects in California, but, as Dr. Elwood Mead expresses it, he felt a call to service under the flag of his fathers. Love of achievement and devotion to ideals drew him from the primrose path of material success ; and it is questionable whether he would have hesitated even if he had foreseen that he would garner a great harvest of ingratitude for his work in giving Victoria a new province. What Professor Murdoch so finely says of Deakin is true of George Chaffey : "He ever set his heart on the goal, not on the prize."

It was at Echuca that George Chaffey obtained his first glimpse of the Murray, Australia's Mississippi. Mighty as is the American Father of Waters, the comparison is not strained. The Murray, Australia's greatest river, is 3400 miles long, *i.e.*, from the source of its largest tributary to its mouth. Its basin occupies nearly one-sixth of the Australian continent, an area twice the size of France, and greater than the watershed of the Ganges or the Indus. The Darling, which empties into the Murray, just below Mildura, may be said to correspond roughly to the Missouri. It rises in Queensland and has a length of 1350 miles in the State of New South Wales alone. The flow of the Murray at the ocean 550 miles below Mildura varies according to season from 124,000,000,000 to 1,350,000,000,000 cubic feet a year.

The Murray, which divides the States of New South Wales and Victoria, was named by the great explorer Captain Charles Sturt, in January, 1830. The Royal Commission of 1902 on the River Murray waters estimated the irrigable area in the Murray Basin at 50,000,000 acres. Sir Samuel McCaughey, one of the Shepherd Kings of the Murrumbidgee Valley, once estimated the waste flow of that tributary of the Murray would irrigate 220,000 acres, returning wheat or barley worth nearly £9,000,000 a year. Walter Madden, a member of the 1884 Royal Commission of which Deakin was President, estimated the waste flow of the Murray and its tributaries in Victoria to be worth £6,500,000 a year, twice the value of the annual gold yield at that period.*

That great ecclesiastic, scholar and orator, Bishop Moorhouse, whose memory is so venerated in Melbourne, was one of the first to reprove the criminal folly of a people inhabiting a semi-arid country allowing this vast stream of wealth to run to waste. Passages like these are frequent in his writings and public addresses :—

" The Murray is ten times longer than the Thames, and is bound to play an important part in the development of this country. The people are missing the chance of maintaining an immense population and of accumulating untold wealth by letting the waters of the Murray roll uselessly into the sea. In times of drought I have been asked to pray for rain. I have replied that the only supplication I could make would be—God forgive us for our idleness, folly and unthankfulness, and give us grace in the future to use better and more wisely Thy gracious gifts."

This noble stream made a profound impression on George Chaffey. He saw at once its vast irrigation possibilities. As *Telemachus* (Francis Myers) of *The Australasian*, one of the

* In 1886, from figures compiled by Stuart Murray, Chief Engineer of Water Supply, W. Madden, M.L.A., worked out the following approximation of the value of water supply of Victoria : —The rainfall in the northern watershed, omitting all districts where less than 15 in. per annum are registered, is 1,726,312,000,000 cubic feet, and in the southern watershed 2,608,187,000,000. It is estimated that of this quantity 258,947,000,000 cubic feet from the northern, and 391,228,000,000 from the southern watershed run into the sea, or about 15 per cent. of the whole. Calculations show that, to reach the ocean, the mean flow per second is 20,561 cubic feet, or 129,068 gallons. This number of gallons is capable of per minute supplying one inch of water to 360 acres of land. In America a flow of a cubic foot of water per second is valued at £8000, and basing his calculations on these lines, Mr. Madden estimates that water to the capital value of £164,488,000 is annually permitted to run to waste. Interest at 5 per cent. on this sum would amount to £8,224,000.

Site of the Town of Mildura in 1887.

best-known journalists of the day, speaking of Chaffey, wrote, "*He saw sterility on either bank, and the river of life flowing in between.*"

Travelling down the Murray from Echuca, George Chaffey first inspected Narrung, A. T. Creswick's station, which proved unsuitable for the scheme he had in mind. At Euston he visited Kulkyne, Henry Miller's station, and it was there he first heard of the Mildura run.* Making a mental note to inspect this area later, he returned to Melbourne by train from Kerang, and after making enquiries from Deakin about Mildura, set off for the scene via Adelaide. He travelled up the Murray by steamer to Wentworth, at the junction of the Murray and Darling, and was driven to Mildura by that prince of whips and out-back jesters, Charles G. McMahon, to whom the Chaffeys later became very attached.

To the eye of the superficial observer the Mildura run in 1886 must have appeared the most god-forsaken region which ever ruined those who had put their faith and money in it. Lying almost at the extreme north-western edge of the 11,000,000-acre Mallee region, Mildura seemed the very abomination of desolation to a visitor's eyes.

In those days the Mallee, now one of the world's great wheat producing areas, seemed so hopeless that the Lands Commission thus reported on it :—

" It is mainly a rainless and a waterless region. In some places the Mallee trees grow as close together as a hedge ; in other places more open there grow up various kinds of saltbushes. Travelling through the centre of the Mallee, the region is a wilderness in the strict sense of the term, not a living creature except the rabbits to be seen, and not a solitary bird. . . . Surveying the Mallee country as a whole, it may be properly described as a vast wilderness dotted throughout with small specks of what appears to be good land set in a framework of undoubtedly good soil. Population may gradually encroach on it from the northern or river side, likewise from its south and south-eastern border. . . . Above all an artificial water supply must be provided before the Mallee can become the seat of even a sparsely settled community."†

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* " Run" and " station" are Australian synonomous terms for a definite area or section of land devoted to grazing—what would be called a ranch or a range in the United States.

† The Mildura run was described in the following terms in an official memorandum by the former Surveyor-General (A. J. Skene) to Alfred Deakin in 1886 :—

Mildura, by reason of its isolation—it was as far from Melbourne as Ontario (California) is from San Francisco—and its evil reputation for ruining those who tried to put it to use, seemed the most wretched and hopeless section of all the Mallee region, which was regarded in those days as an incubus and a reproach to the prosperous State of Victoria. The station homestead lay about thirty-one miles up stream (by road seventeen miles), from the junction of the Murray and the Darling. The run had a river frontage of fifteen miles in a straight line, but the sinuosities of the stream made this frontage actually thirty-two miles. Along this frontage the run extended back about twenty miles, rising generally from the river up to a maximum height of under one hundred feet. More or less parallel to the river front were flats covered with occasional red gum, some of which were magnificent specimens of this fine tree. The flats were subject to flooding at irregular intervals. Beyond these stretched an apparently limitless expanse of Mallee scrub, with the dwarf Murray pine growing along an irregular system of ridges rising

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" The Mildura run, according to the boundaries under which it was originally occupied under pastoral lease, is situated on the Lower Murray frontage, its north-west angle on the river 11 miles east from the junction of the Darling with the Murray. From that angle it covers a frontage to the river of 15 miles measured upwards in a direct line, and embraces an area of 100 square miles approximately.

The distance of Mildura homestead from Swan Hill by road is about 160 miles, and from Wentworth about 17 miles.

Extending from the old homestead eastward and south-westward, there is an area of about seven square miles of open saltbush plain, intersected by narrow belts of Mallee, and along the immediate river bank a strip of country timbered with box and redgum intersected by polygonum swamps, the whole being more or less subject to the overflow of the river when in flood. The area of this timbered strip may be taken at eight square miles approximately.

This combined area of 15 square miles represents the area that naturally produces pasturage fit for stock. The remaining area of this run, 85 square miles, is more or less covered with dense Mallee, pine and other scrubs and bare sand-ridges, and is utterly barren with the exception of a few detached openings of a limited area where the drift sand has not overflowed.

For a few months in the year following such a flood as covers the low-lying strip that fringes the river a fair crop of grass and other herbage is there produced, the amount being dependent on the height and duration of the flood; but it is only on occasions when the saltbush plains are favored with a heavy rainfall—and such occasions in this part of the country are few indeed and far between—that a supply of food for stock is assured for a few months following on these rains.

The often recurring periods of excessive drought severely try this character of country. Its capability is gradually deteriorating owing, in some measure, to over-stocking at the seasons when the herbage on the river flats is swept off by the excessive summer heats; but the recent destructive inroads of the rabbit pest must not be overlooked in searching for the probable causes of this deterioration. . . . ."

almost imperceptibly from the dead level of the plain. The Mildura run was bounded on the north by the Murray, on the east by the South Mildura wire fence, on the south by Henry Miller's sheep-proof fence, and on the west by the 142nd Meridian.

Taken up by unauthorized occupation in 1846, Mildura was one of the oldest cattle runs on the Murray. The origin of its first name, Tiertman, is lost in obscurity, but the name Mildura, which superseded it, applied to the locality by the natives, is believed to express the idea of water flowing through red cliffs or banks. The first settler at Tiertman was Frank Jenkin, who drove cattle over the river from the New South Wales side. Having no legal title he was dispossessed, and forced back across to the New South Wales side of the river by Jamieson Brothers, who brought some 6000 sheep to the scene. In 1874 they sold to A. McEdwards. But the capricious era of good seasons was passing away, and in 1880 the troubles of the holders were multiplied by the appearance of that accursed scourge, the rabbit.

The rabbits took possession, and remained in occupation till George Chaffey appeared on the scene. McEdwards, in 1884, had sold out to the Tapalin Pastoral Company, but the property fell into the hands of liquidators, having ruined not only the company, but contributed to the failure of the Commercial Bank of South Australia, which financed it. This was the position when George Chaffey arrived in the autumn of 1886. The sole inhabitants were Wm. McGregor Paterson, manager for the Tapalin Pastoral Company, who remained on the spot hoping that some unwary greenhorn with much money and little experience would take over the white elephant, and half a dozen dejected station hands. We have the authority of Francis Myers ("*Telemachus*") that Mildura at that time was nothing but—

" a Sahara of hissing hot winds and red driving sand, a howling carrion-polluted wilderness. The only thriving living thing was the rabbit, which increased miraculously, for there was no grass. The bare sand was strewn with the bleached bones of sheep and cattle ; sheep were dying all around. The traveller saw starved sheep, red driving sand, rabbits, and innumerable ants. The only tolerable spot in the broad expanse of hopelessness and misery was the little irrigated garden at the homestead on the Murray. Lessee

after lessee had been ruined in Mildura ; indeed the great majority of the squatters on the lower Murray had been reduced to caretakers for banks and other great financial institutions. Had the whole area been auctioned it would not have found a purchaser at 10d. an acre."*

Writing in *The Queenslander* (October-November, 1890), under the pen name *Jethro Tull*, another well-known agricultural journalist of the day, states :—

" Looking at the lower Murray District with the eye of a pastoralist, I class it as the most wretchedly inferior of all grazing country—thirty acres would not keep a sheep."

This was the Mildura which George Chaffey selected as the site of his great irrigation experiment. Victorians were amazed at his choice ; many said he was a madman to imagine that loose red sand would grow oranges and grapes, but the Mildura of to-day, confounding the sceptics of forty years ago, has fully vindicated George Chaffey's judgment.

Paterson was a guileful individual, who in later years repaid with ingratitude and calumny the kindness of the Chaffeys. *Jethro Tull*, writing in *The Queenslander*, gave Paterson's version of his first encounter with George Chaffey :—

" One day, about four years ago, at a neighboring township, a quiet middle-aged gentleman came up to Mr. Paterson and, without giving his name, stated he was on his way to Mildura, and would like to stay a few days. He said his name was George Chaffey, and handed him a letter from the manager of the bank, which simply intimated that the bearer was a probable buyer of the station. . . . At sundown the pretty homestead was reached, and the evening was spent by the manager talking sheep and descanting upon the superior grazing capabilities of the run, and by the probable buyer in quietly listening. It transpired during the evening that the newcomer was a new chum to the colony, was new to squatting, and had the money. ' What a godsend,' thought the manager. ' It shall not be my fault if I don't shove the old worn-out run on to him.' Next day the horses were got out, and the inspection, which could not be possibly done under several days, was begun. The manager took the lead and did the talking. The track was over the saltbush plains and through the straggling open Mallee, and the new chum was told of the exceeding fattening quality of all saltbushes, and how open Mallee was equally as good as the plains. He was told that the absence of grass was nothing, for after the

* *Irrigation in the New Australia*, by Francis Myers (" *Telemachus*"), Melbourne, November, 1894.

slightest rain numerous saline herbs grew, all eagerly relished by sheep. The belts of dense Mallee and pine ridges where not a blade of grass was to be found were carefully avoided, and the ride home was along the river flats, where under the huge red gums and stunted box, grass was long and plentiful. The manager thought he had made an impression.

" Next day the new chum began to assert himself. He kept to the river, enquired how it fell in the summer, how long it kept in flood, examined the cliffs and looked at the sub-soil, and at the sub-soil exposed in any rain gullies ; was greatly pleased at the long anabranch or billabong ; asked how deep was it, how was it filled, did it retain the water, etc., etc. The dense Mallee belts, avoided the previous day, were not only visited, but critically examined, so were the pine-covered sandhills. ' Would he not go down and see the sheep ? ' suggested the manager. ' No, I suppose they are what you say they are, but how high do you think this ridge is above the river ? That distant pine scrub must be higher, let us go and see it,' was the strange reply.

" The pretty garden, too, at the home station, came in for careful examination ; every tree and shrub was noted, and particular pleasure expressed at the oranges and lemons and the vines. Conversation slackened somewhat that evening. The manager was completely nonplussed ; he had had his say, and had got a rank new chum to say it to, but what was the good when his man did not care whether the points of the station were good or bad. He was asked whether there was a theodolite on the station. ' Yes.' ' Is it in order ? ' ' Yes, we use it to run the boundary lines. You will find them quite correct.' ' I should like to take it with us to-morrow,' was the quiet reply of the green new chum. The manager said nothing, but thought a good deal.

"Next day the theodolite was taken, but not to the boundary line, only to the river bank, and the height above water noted ; then the height of the saltbush flats and rises, and these heights marked down in a pocket book ; then this, that and the other Mallee and pine ridges had their levels taken, till at noon a halt was made for lunch. The manager felt he could stand this tomfooling sort of inspection no longer. This man was no squatter, but a —— fool. What was the use of wasting time on him ? ' Look here, Mr. Chaffey, you are a mystery to me. Who are you ? What do you want ? Are you a bona fide buyer ? You seem to care nothing about the quality of the saltbush or herbs, never even look at the grass, and will not go to see the sheep, but instead keep poking about the river bank and taking the levels of those barren Mallee ridges. What is your game ? I have been trying to pump you these three days. I am sick of this useless work.' Then the quiet new chum smiled and

replied : ' Mr. Paterson, you are not the only one who has considered me a mystery during this visit down the Murray, and my inspection of several stations. All have tried to pump me, and ineffectually, but I shall tell you. I like the place and shall buy it.' ' But you have not even seen the sheep.' ' That does not matter.' ' Good heavens!' exclaimed the manager aloud, and to himself he thought : ' What a greenhorn ! ' Then the quiet man slowly unfolded the gigantic schemes that were working in his brain. He told of the irrigation colonies he had successfully organized in America, and how he had come to Australia to duplicate these on a still larger scale, and how he contemplated irrigating 250,000 acres of the Mildura run. The station manager was thunderstruck. 'Greenhorn indeed,' he thought, ' Why I am the greenhorn.' "*

Having inspected the whole of the river front from Echuca to the South Australian border, a range of 665 miles, George Chaffey chose Mildura as the site for his Victorian irrigation colony. Certainly there was, as *Jethro Tull* states, "a dramatic boldness about the choice of location." It was almost the furthest point from Melbourne within the State boundaries, and the appearance of the soil made the selection a strange, even startling one. This was where the supreme value of George Chaffey's Californian experience came in. He knew, as Victorians did not, the inherent fertility of arid soil when touched by water, and unpromising as it certainly looked, he found it almost exactly similar to the most productive horticultural land of Southern California. He knew it would respond readily and generously to irrigation. He had evidence of this, too, in the beautiful fruit grown in the small irrigated orchard around the station homestead.

Isolated as Mildura seemed, its location was not without certain advantages. Water communication with Morgan, South Australia, 160 miles down the river, was possible for six to nine months of the year, and Morgan was the terminus of the railway from Adelaide, the South Australian capital. Then the Victorian railway system had already flung its tentacles to the fringe of the Mallee, and the nearest railheads at Warracknabeal and at Wycheproof left a gap of but 160 miles to cover. There was good reason to believe that the Victorian Parliament would extend the railway to Mildura once the colony was successfully and permanently established.

* *The Queenslander*, October 25, 1890.

George Chaffey was ready to do it himself on a land grant basis if the Government would not. But here he failed to make allowances for the dog-in-the-manger policy of the Victorian Parliament. It would not permit George Chaffey to construct the line and Mildura had to wait till 1903 for railway communication.

The supreme advantage of Mildura was that it comprised a vast expanse of Crown land fringing on the greatest of Australian rivers, which the records showed would provide unlimited water. The Murray flow at Mildura in 1886 was 236,992,000,000 cubic feet. In 1870 a maximum flow of 1,141,728,000,000 cubic feet was recorded, but in an average low year 200,000,000,000 cubic feet of Murray waters passed Mildura. The flow per second has ranged between 100,000 cubic feet in 1870, and 500 cubic feet in 1915, the record low year. Normally the Murray is 600 feet wide at Mildura, with a mid-stream depth of ten feet.

The climate of the lower Murray Valley, which almost exactly resembles that of the driest parts of Southern California, excluding the unreclaimed portion of the Colorado Desert, George Chaffey believed to be eminently suited for the growth of the orange, lemon and vine, and for the production of dried fruits. The rainfall ranged from twenty inches to four inches with an average fall of eleven inches a year.

As an irrigation proposition Mildura differed greatly from the Chaffey Colonies in California. Ontario was irrigated by mountain streams distributed through the settlement by gravitation. At Mildura the water would need to be pumped to various heights with a maximum lift of ninety feet. Ontario was a pipe line scheme which eliminated waste of water by evaporation or percolation, but the slope from the ridges of Mildura along which the water must be brought to irrigate the lower levels was so gentle that pipe line irrigation would be a practical impossibility. The writer asked George Chaffey last year why the water was not reticulated through the Mildura settlement in pipes as was done at Ontario. His reply was the fall of the land was so slight that very large pipes would have been required, and the cost of these would have been prohibitive.

Having determined to make Mildura not only an irrigation settlement, but a new centre of human happiness and comfort,

George Chaffey returned to Melbourne and put two propositions before Deakin. First, that the Government should give him a grant of land at Mildura for the establishment of an irrigation colony; secondly, that the Government should purchase the pastoral lease, stock and improvements on the run, and hand them over to him in consideration of the great pioneering work he was undertaking. The purchase of the pastoral lease was an essential step, because the present holders who occupied the river front could not be dispossessed, otherwise than by the payment of compensation, unless three years' notice were given them by the Government.

Deakin rejected both propositions in the form drawn up by George Chaffey, but assured him that a grant of a large area could be obtained from Parliament subject to conditions which would guarantee an expenditure on irrigation settlement proportionate to the size of the area which might be granted. He pointed out that the Victorian Parliament was most jealous in its dislike of any scheme that involved alienation of State lands, and warned Chaffey that although he personally would be willing to do more to secure a Chaffey colony in Victoria than Parliament would dream of doing, he felt in honor bound to surround any agreement which might be come to with the strictest possible conditions to safeguard the State. He recognized the fairness of the contention that George Chaffey should be reimbursed, to some extent at all events, for the necessary purchase of the squatting rights, and agreed to make a recommendation to the Government to this effect. On this basis the negotiations began.

George Chaffey had pictured a State ready to make real concessions to a man able and willing to inaugurate a new productive system and to settle with hundreds of small farmers, waste, totally uninhabited lands, but he did not bargain for the peculiarly Australian fear of land grants, and for Her Majesty's Opposition in the Assembly, then led by that roughest of demagogues, Thomas Bent.* Still, in his enthusiasm for the great work which lay at his hand, he accepted a

* "Thomas Bent was the perfect embodiment of all that Deakin most detested in public life."—*Alfred Deakin*, by Professor Walter Murdoch, Constable and Company Limited, London, 1923.

basis of negotiation which he would not have dreamed of even considering in America.*

When Deakin brought the negotiations to Cabinet, Premier Duncan Gillies, a hard-headed Scot, asked at once whether this stranger possessed the standing and capital to put through the vast colonizing scheme contemplated. George Chaffey, who had never posed as a great capitalist, quietly assured the Government of his confidence that his expert knowledge would secure adequate financial backing in Australia and abroad. He invited the Government to make enquiries regarding his standing in California. Accordingly a cable was despatched by one of the Ministers, probably Sir Henry Wrixon, to the Bank of California, then, as now, one of the leading financial institutions of San Francisco. When in California, in 1926, the writer communicated with the President of this organization asking if copies of the correspondence were available, and received the following reply :—

In reply to your letter expressing a desire to obtain, if possible, copies of cable correspondence exchanged between the Victorian Government and this bank in 1886, I regret to say that all such records and files of this institution were destroyed in the Great Fire of 1906.

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* *The Argus* of October 21, 1886 (the exact date on which the Agreement was signed), published an exclusive account of the negotiations. This article is of historic interest, as giving the first public intimation of the form the negotiations had taken. It stated :

" A proposition was some time ago submitted to the Government on behalf of the Messrs. Chaffey Brothers, of California, to purchase on special terms some thousands of acres on the Mallee fronting the Murray and near Swan Hill, on condition that a colony devoted to intense culture, the dried fruit industry and scientific farming should be established on the land, which is at present of little value. . . . The leading features of the scheme submitted to the Victorian Government are that the firm shall be bound under pain of forfeiture to improve the land by cultivation, clearing, tree-planting and irrigation, and the introduction of the best methods of farming and agriculture. The land having been reclaimed, the firm proposes to dispose of it in small but highly-improved blocks, retaining only such as would be required for sites for machinery, reservoirs and rights-of-way. The purchaser of each lot is to have the right to a permanent use of the water : in other words, the owners of the land are to become in time owners of the water, which is the principle carried out at Ontario and other colonies. . . . Every facility will also be given to all comers to inspect the farms and learn different methods of culture and the use of water in the proper quantities at the right seasons, also the planting, sowing and budding of fruit trees. . . . If the land is acquired the colony will be laid out with roads intersecting every 160 acres, so that there will be a road frontage to every twenty acres, together with a permanent supply of water for domestic and irrigation purposes to each lot. . . . The firm do not want the land in one block, but desire power to take up portions as they are able to irrigate and settle it. Irrigation will precede settlement.

Inasmuch as the cable exchange had to do with an enquiry from Australia, and a response from this bank concerning the standing and reputation of Mr. George Chaffey and Mr. W. B. Chaffey, I am happily able to give, without any reservations whatever, the gist of our message. There could have been but one answer to a question which touched upon the good faith, ability and character of these gentlemen. Their names are well known to all of those familiar with the development of this State ; they have contributed largely to its progress by their courage, foresight and straightforward dealings in the handling of the enterprises in which they were engaged.

It has so happened that I was better acquainted with Mr. George Chaffey than with Mr. W. B. Chaffey, and I know of no one example for all the qualities that make for good citizenship, industry and integrity that is better than the example of his business life.

(Signed) C. K. McIntosh,

President.

Satisfied with the Chaffey *bona fides*, the Cabinet authorized Deakin to proceed with the negotiations. These lasted for some months, George Chaffey fighting hard to secure the best possible terms. The final upshot was that on October 21, 1886, he signed the Agreement with Alfred Deakin which marked the beginning of Mildura's history as an irrigation colony.

CHAPTER X

THE AGREEMENT

"AN Agreement between the Government of the Colony of Victoria and George Chaffey and William Benjamin Chaffey to secure the application of private capital to the construction of Irrigation Works and the establishment of a system of instruction in practical irrigation."

This was the title of the official paper embodying the Chaffey Agreement presented to Parliament by Deakin on Thursday, October 21, 1886. It was signed by Alfred Deakin and George Chaffey—W. B. Chaffey had not arrived in Victoria —and witnessed by R. A. Sutherland (Crown Solicitor), and C. W. Langtree (Secretary for Water Supply). George Chaffey had his brother's name inserted in the agreement in order to make it clear that the Victorian irrigation scheme would be carried out by the same firm exactly that had created Etiwanda and Ontario.

The Agreement provided :—

Subject to the consent of Parliament, the Government would set aside 250,000 acres at Mildura for occupation under license for 20 years by Chaffey Brothers, for irrigation purposes, Chaffey Brothers to have the right to construct works on any part of this area for conserving and distributing water

Chaffey Brothers undertook to expend a minimum of £300,000 on substantial and permanent works and improvements in the following instalments :—During the first five years £35,000 ; second five years £140,000 ; third five years £75,000, and fourth five years' period £50,000.

Chaffey Brothers were given the right to acquire title to one acre of land for each £5 spent in works and improvements on 50,000 acres of the grant, such 50,000 acres to be specified in the occupation license, the Government not to be bound to issue any grant for less than 640 acres. On a maximum of 10,000 acres subject to flooding

the Chaffeys were required to spend £2 an acre in order to obtain a grant in fee simple.

On spending £1 an acre in improvements, and paying the Government an additional £1 an acre, Chaffey Brothers were to become entitled to acquire any portion of the remaining 200,000 acres.

The Government undertook to issue a license to Chaffey Brothers, to take water "under the authority of the Government as far as the Government can authorize them to do" for irrigation purposes.

Every grant in fee simple to Messrs. Chaffeys must contain a provision that they should not sell such land except in lots of not more than 80 acres for horticulture, and not more than 160 acres for agriculture. The Chaffeys were not permitted to retain in their possession more than 5000 acres of cultivated and irrigated land.*

The vital provision for all parties was that relating to the minimum expenditure within a given time. This guaranteed to the Government a *bona fide* outlay on irrigation works. It was the sole means by which the Chaffeys could acquire the land they proposed to subdivide and sell at a profit.

The agreement bore an introductory note, drafted by Alfred Deakin, which subsequently aroused the ire of the obstructionists in Parliament. They contended that Deakin had deliberately calumniated his own State in order to gain an advantage for the Chaffeys. A more cruel slander was never uttered, even in Parliament. No more truly patriotic Victorian than Alfred Deakin ever lived. The introduction merely stated the undoubted fact that the Government under the agreement would receive seventeen shillings an acre for land

* Other provisions were :—

Chaffey Brothers to cause engines and machinery for the irrigation works to be manufactured in Victoria, "except such models, patterns or machines as the Government may allow them to import"; Messrs. Chaffey to keep free of vermin the land occupied under the license, and to keep the works and improvements in good repair; the Chaffeys to erect bridges and roads as required by the Government; to establish within five years' date of occupation the industries of fruit drying, preserving and canning; to set apart one-fifteenth of all the irrigated land with a sufficient water right attached thereto as an endowment for an agricultural college, to erect the college at their own cost as soon as 100 families were settled in the irrigation colony; in the event of a breach of covenant by Chaffey Brothers, the Government to have the right to rectify same at the expense of the Chaffeys; following a serious breach the Government to have the right to resume land granted in fee simple except that sold by them. Chaffey Brothers to be entitled to recover 80 per cent. of the value of irrigation works and improvements, the value to be fixed by arbitration.

valued by expert officials at from two shillings and six pence to five shillings an acre.*

Deakin always considered, and events proved him to be right, that this agreement was the most advantageous the Government of Victoria had ever entered into with private individuals. In 1886, Mildura seemed to have had its day, to have no future. The direct return of the run to the State was practically nil, and the expenditure on keeping rabbits and dingoes down had made it a highly unprofitable proposition for the Crown. If, before the Chaffey negotiations, Deakin had announced he had found a buyer for 200,000 acres of Mallee land in the State—one pound an acre—he would have been ridiculed.

The idea that 250,000 acres of land returning a rental of one penny per fourteen acres could be sold

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* This introductory matter is of such historic interest that it is given in full :

The accompanying agreement is proposed to be acted upon by the Government, if the consent of Parliament be obtained, in order to secure to the colony the agricultural settlement of lands hitherto almost valueless, and the practice of irrigation with the most improved methods and machinery under expert management.

The Messrs. Chaffey are British subjects, Canadians, who have been engaged for the last ten years in organizing irrigation " colonies" in Western America. In Southern California, where irrigation is the chief and almost the sole source of wealth, the " colonies" with which this firm have been connected are distinguished by the most successful application of intense culture on the smallest areas, and by the utmost economy in the application of water to a soil and in a climate resembling our own.

It has been frequently urged of late that irrigation in Victoria must be, for some time, little more than experimental, and that the experiment must be costly. Under the proposed agreement the experiments necessary to determine its profitableness can be tested under adverse circumstances at private expense, and with only private risk. It has also been contended that a chief obstacle to success is the prevailing ignorance of the practical methods of applying water according to the necessities of this colony. This necessary practical experience will be offered to our farmers at the irrigation settlement project by the Messrs. Chaffey.

The Mallee country has long been a waste territory, with so light and precarious a rainfall, as only to be suitable for large sheep runs. If the Messrs. Chaffey succeed in their enterprise the value of the 10,000,000 acres comprised in it, which belong to the State, will be very much increased, without reckoning the gain to the general revenue by their making one part of it populous and highly productive.

The particular area now proposed to be settled by means of irrigation is situated 150 miles beyond Swan Hill, and at present returns a rental of only one penny per annum for every 14 acres, that being the highest rate that could be obtained when the runs were put up at public auction. The report of the late Surveyor-General, Mr. Skene, indicates that the carrying capacity of this area is deteriorating, and that it is only ranked as third-class land. Its capital value, estimated by the rental, is twopence per acre, and the present Surveyor-General, Mr. Black, after making ample allowance for its prospective

at an effective price of seventeen shillings an acre would have seemed preposterous. George Chaffey's irrigation project, designated by *Jethro Tull* "*The grandest experiment in co-operative agricultural colonization the world has yet witnessed*," revolutionized previous conceptions of the Mallee land values, and so, after George Chaffey had laid out the colony of Mildura, horticultural lots were selling readily at £20 an acre, while Tapio, the run on the opposite side of the Murray, was still rented at less than one penny (two cents) an acre.

In after years, Mildura land rose as high as £500 an acre for planted lots. This one fact will give an idea of what George Chaffey's advent meant not only to the Murray lands at that period, but to the Victoria of the future. The direct gain to

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improvement, considers the fee-simple to be worth no more than from 2s. 6d. to 5s. per acre. The annual rainfall at Wentworth from 1876 to 1885 averaged less than ten inches.

In view of the great advantages offered, the Government have consented, subject to the approval of Parliament, to the following agreement, under which, in consideration of the establishment of a great irrigation colony of small freeholders, with its dependent industries, including an agricultural college, and upon the expenditure of a large sum of money by the Messrs. Chaffey, it is proposed to grant them a block of land in the Mallee, and to give them the right of purchasing a further area hereafter. If the experiment should fail, the State loses nothing. It retains the largest powers of control over the land, and the enterprise generally, so as to protect all interests that may arise. If the experiment succeeds, the State and the agricultural community will be enormously benefited.

The agreement being conditional, the minimum and the maximum of its operation may be thus stated :—

A—1. If only the smallest obligation of the agreement be carried out, the Messrs. Chaffey must spend within twenty years the sum of £300,000 upon 47,000 acres of Mallee land, or an outlay equal to £6 7s. 8d. per acre. If they are successful in establishing the large irrigation settlement, the college, and the industries required, the Government would, if satisfied that they are *bona fide* carrying out the full provisions of their contract, convey to them, under certain conditions, the land specified.

2. If the largest powers of the agreement, including that just mentioned, are taken the fullest advantage of, the Messrs. Chaffey would require to spend £420,000 in improvements upon 235,000 acres of Mallee land, and also to pay to the Government £200,000, making a total outlay of £2 12s. 9d. per acre, in return for which the Government, if satisfied with their conduct of the undertaking, would convey the land specified to them, subject to certain conditions.

3. In any case, the Messrs. Chaffey agree not to cultivate more than 5000 acres at any time themselves, and to dispose of the land they obtain in blocks of not more than 160 acres.

4. In any case they agree to build an Agricultural College, to be endowed with one-fifteenth of an acre granted to or acquired by them under this agreement.

5. In any case the Government agrees to grant a right to so much water under its control as it may deem necessary.

the State from the Mildura district since 1888 could only be calculated in millions. In the first three years (ended 1890), the rateable value of the Mildura district rose from nil to £30,000.*

As events proved, the agreement throughout the ten years of its existence operated entirely to Victoria's advantage. The State gave away a water right which cost it nothing, and in addition, an acre of unused land for each five pounds spent in improvements. In return it gained a province which to-day is one of the most productive regions of Australia. The two pioneer Chaffey provinces, Mildura and Renmark alone, are now producing fresh and dried fruits valued at well over £1,000,000 a year. The production capacity of the land as pastoral property was one sheep to each twenty acres.

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* "Knowing as I well do this lower Murray country (for I was for seven years a resident there during its palmiest squatting days), to be naturally the most arid and barren in the whole of Victoria, . . . I consider the Victorian Government had far the best of the bargain with the Messrs. Chaffey; and I am all the more impressed that only absolute certainty of results, a certainty gained in running irrigation colonies in California, could have induced these enterprising capitalists to risk so much and to agree to such crushing terms."—*Jethro Tull*, in *The Queenslander*, 1890.

Sir Henry Wrixon, the Attorney-General, who revised the agreement and followed its progress through Parliament, as the legal adviser of the Government, expressed utter amazement that any men should put themselves in the position of leaving themselves so absolutely at the mercy of the Government.

B—The Government gains—

1. The settlement of waste and distant lands.
2. An expenditure in Victoria on the complete transaction of over £500,000.
3. A price on the complete transaction equal to 17s. per acre for land valued at from 2s. 6d. to 5s. per acre.
4. Subdivision of the area into highly cultivated blocks in the hands of small proprietors.
5. Practical demonstration of the possibilities of economical irrigation.
6. Establishment of fruit drying, preserving, and canning industries.
7. The manufacture of much machinery and plant in the colony.
8. Establishment of an Agricultural College, built and endowed by Messrs. Chaffey.

C—It should be noted that the Government retains absolute power over both land and water—

1. It issues no Crown grant till satisfied of the *bona fides* of the enterprise, and only upon sufficient approved expenditure.
2. It can at any time revoke all grants issued not *bona fide* disposed of for valuable consideration.
3. It gives only such water as from time to time it thinks necessary.
4. It can enforce compliance with its orders and regulations, and upon breach of contract can resume possession on payment of 80 per cent. of value of works.
5. Also that the land proposed to be dealt with, and the great territory of which it is a part, can only be rendered of more than nominal value by some such means as is now proposed.

George Chaffey, on the other hand, gained the right to occupy 250,000 acres for twenty years. By a heavy expenditure on water works and improvements he could acquire the freehold to Block "A" (50,000 acres); *i.e.*, before he could subdivide any portion of the 50,000 acres and sell it to settlers he had to spend an equivalent of £400 on each eighty-acre lot. If he desired to acquire a title to the other 200,000 acres he must, in addition to spending one pound an acre in improvements, purchase it at a price which

SOUTH-EASTERN AUSTRALIA.
A contemporary sketch-map, showing the Murray Valley in 1889 and the location of the Chaffey Irrigation Colonies.

the Government's own experts estimated to be from 400 to 800 per cent. above its value. On four-fifths of the "concession," as it was afterwards termed, the Chaffeys would pay a price determined by the outlay of their own capital. George Chaffey had to take all the risk because many tens of thousands of pounds must be spent before a single settler could be induced to take up land in that "hissing Sahara," and there was no guarantee that anybody could be attracted by his project.

In the light of this agreement it cannot be claimed that Victoria treated George Chaffey generously. Indeed the Opposition in Parliament saw or professed to see in the project

a scheme for "cheating the State of its patrimony," and both he and Deakin were assailed by a band of political bravoes safely entrenched behind the privilege of Parliament, for in British countries there is no legal remedy for any wrong or injury caused by a speech in Parliament.

The sole recognition by the State of George Chaffey's courage and enterprise in undertaking such a vast pioneering project was a promise, afterwards kept, that if Parliament approved the agreement, the Government would find half the amount necessary to purchase the Mildura run leasehold rights and improvements. Deakin confessed in Parliament that he feared the bargain was too hard on the Chaffeys, and that he did not see how they could sell the land acquired under this agreement at a price which would return them a profit on their outlay.

All this helps to explain why the great wealth which George Chaffey expected from his Australian projects did not materialize. His ideals and dreams of achievement impelled him to undertake the herculean task of transforming Mildura into a great centre of population, and he expected at the same time to amass wealth in the process—it is a vulgar error to imagine that a business enterprise necessarily excludes generous feeling or public-spirited purpose. He succeeded in his first object beyond expectations, and lamentably failed in the second, but he was content. The prize was only a secondary consideration after all.

The only possible criticism of the agreement was that the area of land to be alienated was too great, but this was answered by the fact that the alienation of the whole was contingent upon a total expenditure of over £600,000, and could be merely progressive, *i.e.*, as the settlement expanded and the expenditure increased the process of gradual alienation would keep pace. The expenditure necessary for the beginnings of an irrigation colony would not be large enough to involve the alienation of the first 50,000 acres at one stroke, and as the influx of settlers necessitated the enlargement of the colony the land would pass in fee simple, through the Chaffeys certainly, but actually to the settlers, in small holdings the size of which were strictly limited.

On the other hand, should the growth of settlement be great enough to absorb even the full 250,000 acres, that land would have become not the property of the Chaffeys—they

were limited by the agreement to 5000 acres—but to those comprising the new community.*

Simultaneously with the Chaffey negotiations, Deakin was preparing the comprehensive State irrigation policy contained in the Water Supply and Irrigation Bill introduced by him into the Victorian Parliament on June 24, 1886. The Irrigation Act clearly defined the limits of State irrigation enterprise, and it was specially designed to leave ample scope for the Chaffey project. The one was the corollary of the other. Deakin's speeches in Parliament on the Chaffey Agreement are given in the next chapter. Reference must, however, be made to his masterly discourse in introducing the Irrigation Bill—the most eloquent, certainly the most important, of the Parliamentary orations of his pre-federation career.

Veterans of the House listened spellbound at the amazing young man's lucid enunciation of a most complicated and highly technical measure. (Deakin was not yet thirty.) He succinctly outlined the development of the irrigation idea in Victoria and drew vivid word pictures of the hideous dilemma in which the settlers of the northern plains found themselves. Good rains up to 1875 had decoyed them into the arid regions, and from that year there had been a steadily decreasing rainfall. Unless irrigation on a considerable scale were introduced into the north, he told the House, it would become depopulated, thus early in the history of Australia Felix. Deakin concluded one of the most notable speeches in Victorian history with a prophetic burst of eloquence, which calls for quotation :—

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* The agreement aroused extraordinary interest, and not a little surprise at the excellence of the bargain, in the Victorian press. The comments of *The Argus* were :—

". . . . As the matter now stands, little more can be done than congratulate the country that the enterprise of the Messrs. Chaffey has enabled the Chief Secretary (Deakin) to make an excellent bargain for the State. The Mallee, which constitutes the bulk of the territory now in the hands of the State, is practically valueless, and the Messrs. Chaffey are ready to take a block in hand and establish upon it one of the " irrigation colonies" by which irrigation has been developed in America. The Messrs. Chaffey, who are British subjects, have been most successful in their enterprise in the States. Their qualifications are undoubted, and certainly it says much for our irrigation prospects that experts of their standing should see their way to undertake a large experiment here. . . . This wilderness the Messrs. Chaffey undertake to transform into a garden. . . . It would be a grand thing to have the Mallee transformed in this manner—to have our farmers taught " intense culture" by means of irrigation, without risk and without cost to the State. . . . ."—*The Argus*, October 22, 1886.

"In the future, when this colony forms part, as I hope it will, of a Federated Australia, that will be renowned, I trust all round the world, for the richness of its soil, the enterprise of its people and the freedom of its Government—I believe that in those days this small Victoria will be a greater garden than it is now. I believe that if we are able to seize our unparalleled natural advantages as compared with the rest of Australia, even our small territory will bear a population that will compare with some of the greatest of our neighbors. I believe that our agricultural production, by utilizing the water supply available for irrigation, may be made to compare favorably with that of the colony most favored by nature. We shall have a large and prosperous population obtaining its wealth by the surest possible means, that is, from the soil delivered from the risks of rainfall not dependent on the chances of the clouds, but able to secure moisture when it is needed and to apply just the necessary quantity of water to bring their products to the highest state of perfection.

"Then, I say, if irrigation proves the success which we have every reason to hope it will, we shall compare in population as in wealth—as I hope we shall always continue to do in energy and enterprise—with any colony of the group or any country of the world; and those who visit us then will, like the explorer who first penetrated to the heart of our great plains and grassy hills thirty or forty years ago, be led to confess that, if there is a spot meriting the proud title of Australia Felix, it is the colony of Victoria."

CHAPTER XI

THE JACKALS

KNOWING the bitter spirit of one of the most factious Oppositions in Victorian Parliamentary history, Alfred Deakin fully expected the Chaffey agreement to be received with hostility—denunciation of a Government measure, no matter what its merits may be, is part of the game of party politics. But the most experienced politicians on the Government side, press and public alike, were unprepared for the extraordinary and scandalous proceedings of the Opposition when the agreement was brought before the Legislative Assembly.

The reception accorded the agreement by the other House, the Legislative Council, was in marked contrast. The Council passed the measure at a single sitting, so impressed were its members with the benefits to be derived by the State from the Chaffey project.

Dr. Cunningham, the best-informed observer of Victorian politics of the time living, states that the proceedings in the Assembly were the most discreditable in his experience of Parliament. The Opposition, led by Thomas Bent, a particularly gross though able politician, was not strong numerically, but it made up for this by first-class debating ability and a capacity for violent invective probably unequalled in Victorian annals.

Associated with Bent were several disappointed office-seekers, furious at the political stability attained by the coalition between Duncan Gillies, the keen businesslike Scotsman, and the brilliant Minister for Water Supply, Alfred Deakin. The baffled rage of the place hunters—three at least were rising men of considerable ability, who later attained high rank in Victorian public life*—was fully vented on the Chaffey agreement introduced into the Assembly at the fag-end of the

* J. B. Patterson, Thomas Bent and W. Shiels, each of whom became Premier later.

Session. Though hopelessly outnumbered, the Opposition took advantage of the forms of the House to carry on a plan of organized obstruction, which left the Government temporarily helpless. Patience was the only weapon the Ministry could employ against clamor, and, as often happens, clamor won a partial victory. Though the demagogues could not defeat the agreement, they succeeded in jeopardizing and delaying it. The main points of objection were :—

1. It was contrary to Victorian policy and sentiment to allow such a huge area to be alienated by private individuals ;

2. The concession should be thrown open to public tender to allow those Victorians desirous of establishing irrigation colonies to do so ;

3. There was something sinister, corrupt and infamous in the bargain.

The first objection was a cunning attempt to inflame the popular prejudice against land grants. It missed fire, so eager were Victorians for the grand experiment of reclaiming the Mallee. The second point, though plausible, was a hypocritical evasion of the facts. There were no Victorians qualified to establish an irrigation colony in Victoria on American lines as desired by the Government ; certainly no Victorians had within recent years shown a *bona fide* desire to take up Mallee land in any quantity, large or small.

The suggestion that the agreement was a fraudulent bargain was not taken seriously inside or outside Parliament. It rebounded heavily on Bent, as will be seen later. If there were any grounds for suspicions of this nature they were indeed caused by the conduct of the Opposition itself, which allowed the second reading of the measure in which the agreement was incorporated to pass without division, and concentrated its energies on attacking the bill in committee. This extraordinary conduct undoubtedly gave some color to the ugly rumors which went all over the State that certain of the Opposition were looking for something more substantial than the assurance that they were promoting the welfare of the State, to induce them to support the agreement.*

* *The Argus*, on December 23, stated :—" The men who stonewalled the Chaffey agreement may be pure-minded fanatics. Or they may have acted from mere personal or party cussedness. Or they may—no one can tell—have had an idea of favoring, or making possible, black-mailing operations out of doors."

Be that as it may, they would have waited an eternity for George Chaffey to conciliate them. It was characteristic that he did not even attend the debates. Amazement at the outcry in the Assembly against a project which meant so much to Victoria was succeeded by disgust and, at one stage, he was about to drop the whole scheme and leave the Mildura run to the rabbits. The dramatic offer of a concession by the South Australian Government, which led to the establishment of Renmark, came just in time to induce him to remain in Australia.

The first reference in the Victorian Parliament to the possibility of private enterprise establishing irrigation works in the State was made in the Assembly on August 25, 1886, by Alfred Deakin, in moving the second reading of *The Waterworks Construction Encouragement Bill.* This measure, introduced into the Assembly and read a first time on July 1, was designed to give legislative countenance to the agreement which Deakin was about to conclude with George Chaffey. The Chaffeys were not specifically mentioned in Deakin's second reading speech, though every member knew of the negotiations. The agreement had not yet taken final form, and Deakin thought it would be premature to mention names at that stage. In moving the second reading, Deakin explained that it was merely an enabling bill to provide means by which something might possibly be done later. He proceeded :—

The only reason why the alteration it makes in the 78th section of the 1883 Act was not embodied in the Water Supply and Irrigation Bill was because I thought it would greatly facilitate the discussion in committee, of that large irrigation bill if this were first passed into law, as the Government hoped at that time to be in a position to lay on the table, a proposition as to an agreement to be made under the present measure to encourage private enterprise in establishing in Victoria, some of those irrigation colonies which have been so remarkably successful in parts of Western America. The Government has very nearly arrived at something like an agreement which it would like to submit to the House if this bill be passed, before the Irrigation Bill gets through committee. It will, I am sure, be very valuable to members as showing what private enterprise is prepared to do in this part of the world. The present measure is one which I regard as of the highest importance to the future of irrigation in this country, and I shall be very seriously disappointed if the negotiations which are now going on do

not result in the encouragement of the carrying out of irrigation by private enterprise.

Deakin then explained that the object of the bill was to give the Government power to lease to private companies as well as to Water Trusts, water rights or Crown lands and, in addition, power to grant water rights and Crown lands in fee simple if Parliament saw fit. This was done with the distinct intention of encouraging private enterprise, which was an essential part of Government policy. "*By encouraging private enterprise,*" *he said,* "*we hope not only to get the general benefits which result from the encouragement of irrigation under any terms, but also to get the advantage of the lessons which probably private enterprise will be always more quick to learn than any State organization.*"*

Thomas Bent, the Leader of the Opposition, said the measure looked suspicious. It was apparently a bill to give away public territory. Why did not Deakin say on whose behalf the bill was brought in, he asked.

David Gaunson (Emerald Hill), interjecting: This is the "Yankee Grab" Bill.

Bent: There is something behind this bill which is hardly straight.

G. D. Carter (West Melbourne) thought (for some undivulged reason) the bill was a temptation to wrong doing. It would encourage peculation of the public estate.

J. T. Brown (Mandurang) said it would be better if the gentlemen who came from America to invest capital here should do as other men with capital had done—purchase an estate and apply for a water right from the Government under the bill.

J. F. Levien (Barwon) said the bill was dangerous and extraordinary. He would vote against it a hundred times.

The debate was then adjourned.

The Chaffeys were first mentioned by name in the Victorian Parliament on October 21, the day on which the agreement was signed. When Deakin made this historic announcement, his enthusiasm evoked a chilling response from the Opposition. David Gaunson interrupted the speech by a purely technical point of order, and deprived the House of the opportunity of hearing the Minister's full statement.† The matter was introduced by Deakin in the following words :—

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* Victorian *Hansard*, p. 1220, August 25, 1886.

† Commenting on this inauspicious incident, *The Argus*, of October 22, 1886, stated :—

"No one charges Her Majesty's Opposition with courtesy. But yesterday a singular exhibition of discourtesy occurred, by which the public suffers,

I crave the indulgence of members in order that the Government may take the House into their confidence at the earliest possible moment on a question of considerable public importance. When recently a bill was submitted to the Chamber, providing for the encouragement of private irrigation enterprises, the Government were not in a position to allude distinctly to any proposition that had been made to them because the proposition that had been made was then in an uncomplete form. To-day I had the privilege on behalf of the Government of signing an agreement with the Messrs. Chaffey Bros., subject to the approval of this House.

The real fight began on November 30, when the *Water Works Construction Encouragement Bill* was considered by the Assembly in committee. It was soon seen that the Opposition, instigated by Bent, Gaunson, Dr. L. L. Smith, Col. W. C. Smith, and Charles Young (a member of the Irrigation and Water Supply Commission), had resolved on obstructive tactics. The violence of the Opposition's methods created a first-class sensation throughout the country. It was a new experience for that generation, accustomed as it was to political uproar and disorder. A series of disgraceful scenes in the Assembly amazed and shocked an indignant public. Everyone felt them to be a reflection on Victoria's cherished system of democratic government.

The bill had been allowed to pass the second reading without division, but immediately after Deakin had inaugurated the committee debate the obstruction began.

Deakin said the Government intended to incorporate the Chaffey agreement in the bill, though it gave no particular privilege to any particular person. It simply provided that it should be competent for the Government with the consent of Parliament to deal with private persons proposing to establish irrigation settlements. Although the bill made no reference to any agreement, it was generally known at the time it was previously discussed that certain persons had been some time in the colony making themselves acquainted with the prospects of irrigation here (George Chaffey and Cureton). At that time there had been certain preliminary propositions which

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Mr. Deakin laid upon the table of the Assembly the important irrigation agreement which he had that morning signed with the Messrs. Chaffey, and he asked leave to make a brief statement of the facts of the case. This leave was refused him. The agreement, happily, is tolerably clear. Yet there are points which the agreement cannot explain, and on which it would have been desirable to have had an explanation from the Minister, while, as it is, thanks to the Opposition, the explanation can only be guessed at."

were in process of being reduced to an agreement. The second reading had been allowed to stand over until the agreement was concluded. It was very satisfactory to note that the public out-of-doors had taken a most active interest in the matter. The proposition had been spoken of in terms of commendation by every newspaper published in Victoria, and by many in other States. In forty newspapers filed, the commendation was most emphatic. Every Shire Council which had discussed the matter, including that of the district concerned, had commended the proposal. Farmers' Clubs, Agricultural Societies and other representative bodies had expressed their approval. So far as the present proposal had been discussed it had obtained a favorable verdict on all hands.

There were very severe conditions in regard to the expenditure of money by the Messrs. Chaffey on the first 47,000 acres. On that area they were bound to spend at the rate of £6 7s. 8d. an acre. They would not get the Crown grant until they had complied with the conditions imposed. Until they did this they would be in no better position than the lessees of any private estate, and could give no title. How they were going to induce people to settle on land and pay money for it when they could give them no title but merely a permissive occupancy he was at a loss to see. He did not see how it would be possible for them to induce settlement on the land while they had to spend £300,000 in acquiring a title to the land themselves. The present Surveyor-General valued the land at from 2s. 6d. to 5s. an acre, and stated that way back from the river 2s. 6d. an acre would be a high value to place upon it.

Gaunson : Then don't you think you are swindling the Messrs. Chaffey by charging 17s. 6d. an acre.

Deakin said that to be entirely frank he confessed he had some suspicion of the sort. Enthusiastic as he was supposed to be as to the possibilities of irrigation, he confessed he would be very sorry to have a single penny in the Messrs. Chaffey's undertaking. Brilliant as were the results in favored localities in America he did not see anything in the circumstances of the Mallee to justify the expectation that irrigation in it would realize the much more handsome results which this agreement necessarily implied. The terms of the agreement with Messrs. Chaffey were far more stringent than the most unfavorable conditions he saw imposed on any syndicate in America, and the successes in America, brilliant as they were, would require to be surpassed in the Mallee if the agreement were to be made profitable to the Messrs. Chaffey.

The late Surveyor-General Skene gave an even more unfavorable opinion of the land than the present Surveyor-General, so the

State would receive three or four times the value placed on it by these expert officials. The present rent of the land was one penny (two cents) for 14 acres, or a capital value of twopence an acre. This particular land had been the means of ruining the last two or three holders who had carried on pastoral pursuits there, and the last bank which had advanced money on the station from which this block of land was cut out was perfectly willing now to take 2s. 6d. in the £1 on the advances it had made. This showed what the land was worth without irrigation.

If this agreement were carried out and the land subdivided accordingly, it would maintain a population such as never yet had been maintained by an equal area of the best agricultural land in Victoria—yet this had been regarded as the barren and uninhabitable part of the country. Chaffey Brothers would have to spend £2 12s. 9d. an acre on the whole 235,000 acres—a greater expenditure than the State required from selectors of the richest land in the colony. The State in fact required an expenditure of only £1 an acre by selectors. This land was 150 miles beyond the furthest limit of settlement, and 300 or 400 miles from the seaboard.

He thought the concessions to be made to Messrs. Chaffey were a small price to pay for the advantages which the State would derive from the agreement. If Messrs. Chaffey failed to convince the Government that they were carrying out the agreement, " in good faith and in a satisfactory manner," the whole of their expenditure should be lost. The real success of the great irrigation policy hung upon the success of the Chaffey scheme. If they succeeded, the success of the whole scheme of irrigation would be guaranteed, and the success of hundreds and thousands of farmers would be guaranteed too. He believed that the success of the Chaffey enterprise would work such a revolution in the value of land in the northern areas of the colony as had never yet been dreamed of.

If members had seen, as he had, the wonderful results produced by the Chaffeys in Southern California—if they had seen how by the distribution and judicious application of water, orchards, orange groves and vineyards had sprung up in the space of ten years in the midst of what was previously an absolute desert, they would realize how great were the benefits which might be expected to be derived on the northern plains of Victoria from the proposed scheme. If Messrs. Chaffey succeeded in what they stipulated to do they would accomplish a work which would open up a bright future to the people of Victoria.

Bent said the bill was entirely in the interests of Chaffey Brothers, because it enabled them to absorb 250,000 acres without competition. Throw it open to public competition he urged—others would take up the land if given a chance.

Premier Duncan Gillies (Rodney): It is one of the best agreements ever written.

J. H. McColl* (Mandurang) said the Chaffeys were men who as Victorian colonists would do the country credit. They were men of enterprise, ingenuity and inventive talent.

Walter Madden (Wimmera) said Australia, a country specially intended by Providence for the growth of fruit, imported £450,000 worth in 1885, while in the same year, California exported £700,000 worth. The Chaffeys were respectable professional men, who by far-seeing enterprise, great ability, pluck and business capacity had realized a good deal of capital from their success in irrigation colonies in Southern California. These gentlemen, having offered to settle in Victoria and teach the people how to irrigate the Mallee country, it would be madness for the community to miss the opportunity.

The fight was resumed on December 7, when J. B. Patterson (Castlemaine), an able young politician, who soon afterwards, as Premier, became an ardent admirer of the Chaffey achievements at Mildura, said the bill was a complete divergence from the land policy of the State.

Under the land law, he said, a man was entitled to acquire 320 acres of Crown land in fee simple, and no more. If Chaffey Brothers failed to comply with the terms of their contract, the agreement should be void and the improvements forfeited to the State. But before they could be turned off the land the State would have to pay 80 per cent. of their improvements. He suggested 10,000 acres as a gift, with 20,000 acres more if certain conditions were complied with, and then let it be seen what they could do in the way of irrigation. It ought to be sought to keep the Chaffeys in the State. The press had been carried away by the grandeur of the scheme.

J. F. Levien (Barwon), afterwards Chairman of Directors of Chaffey Brothers Limited, said the Chaffeys would secure a prize which any Victorian would be only too glad to have a chance of. If the bill passed he would like to be the next man in Victoria to obtain privileges like that. Obligations imposed by the Government were insignificant. He strongly opposed the bill.

G. D. Carter (West Melbourne) bitterly opposed the bill, saying a man must be a Canadian or an inhabitant of some country other than Victoria before he could secure the goodwill of Deakin and the Government.

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* Son of Hugh McColl, mentioned in Chapter I.

The first trial of strength took place on a proposal by W. Shiels (Normanby) to adjourn the debate. The Opposition was defeated on division by 21 votes to 40.*

Carter then made the startling charge that the promoters of the bill had canvassed members, and did not care twopence about any opposition because they had a majority. C. Young repeated this charge, in which, of course, there was not a word of truth. George Chaffey did not even attend to hear the debate lest his presence in the precincts of Parliament be misconstrued.

Deakin demanded that any member who could say he had been canvassed by Messrs. Chaffey come forward and say so. Then he would make a statement. There was no response and the debate was continued.

In reply to an appeal by J. T. Brown (Mundurang), Deakin offered to adjourn the debate on the understanding that the bill would be passed next night. This offer was spurned by the Opposition, Patterson saying he was prepared to take on himself the odium of preventing the passage of the bill.

After further obstructive speeches by Shiels, Levien and E. L. Zox (East Melbourne), J. Russell (Ballarat East) reminded the House that Ministerialists deserved consideration as well as the Opposition. If the Government yielded when it should be firm it was not acting fair to its supporters. Deakin's olive branch had been met with "a red flag and a blackthorn stick." He had not heard any valid objection to the bill.

Gaunson, who had previously taken advantage of a technical point of order, to prevent Deakin from making a statement on the Chaffey agreement, then, by the device of calling the Chairman's attention to the presence of strangers, had the galleries cleared of visitors, reporters and Hansard shorthand writers—a particularly futile and spiteful form of obstruction. The House rose at about 3 a.m.

The obstruction was resumed next day by W. Shiels, who said a competition carried on between two cute Yankees, who

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* The voting was:—

Ayes—Carter, Langdon, Rose, Fink, Laurens, Shiels, Gaunson, Levien, L. L. Smith, Graves, Munro, Vale, J. Harris, Murphy, Woods, Hunt, Officer, C. Young, Jones, Patterson, Zox.

Noes—W. Anderson (Creswick), Gardiner, Pearson, Gillies, Pierce, W. Anderson (Villiers and Heytesbury), Gordon, Russell, Graham, Sands, Bailes, Groom, Shackell, Baker, A. Harris, C. Smith, Bourchier, Highett, Staughton, Cameron, W. Madden, Uren, D. M. Davies, J. J. Madden, Tucker, Deakin, McColl, Walker, Derham, McLean, Wheeler, Dow, McLellan, Wrixon, Field, Murray, A. Young, Forrest, Nimmo, Outtrim.

had evidently cut their eye teeth at an early age, with a guileless gentle-mannered young man unused to business but with so great an enthusiasm about irrigation as almost to amount to water on the brain was altogether unequal.

A friend of his twelve years ago, he continued, had purchased the Mildura run of about 260,000 acres for £33,000, including sheep worth between £8000 and £9000, and had made about £100,000 out of it, he claimed. The marketable value of the Mildura run two years ago was about £44,000. Uncertain seasons and the fall in the price of wool had caused Messrs. Grant, Dean and Swan, who bought it from his friend, to mortgage first to the vendor then to the Commercial Bank of South Australia, which went into liquidation chiefly on account of the large debt owed it by Grant, Dean and Swan. The liquidators of the bank, of whom Thomas Playford was one, now held the run against a debt estimated at from £80,000 to £100,000.

Deakin said the bank's price for grazing rights and improvements was not above half the £44,000 mentioned by Shiels as the value of the right to depasture, excluding the sheep. The proposed block had not been projected by the Chaffeys as alleged. The Government had determined that the river frontage should be one-third the depth —a 10-mile frontage—and the map was drawn accordingly. The agreement was drawn by the Crown Solicitor, who declared there was not a clause in it which could be used to the prejudice of the Government, and revised by the Attorney-General. Both held it was not obligatory on the Government to carry out the compensation provision or to give water. If the scheme succeeded, even if it proved a gain to the Messrs. Chaffey, what an enormous gain would be reaped by the Government. There would be all the millions of acres of the rest of the Mallee to be disposed of in the light of the experience gained by the success of this experiment. On the other hand, if the Chaffeys failed, there was the guarantee that the Government was protected. If the agreement failed the country need lose nothing. The Government need not resume the concession in the event of the Chaffeys failing to honor their agreement. It could keep on at the expense of Messrs. Chaffey until they had nothing.

The gauges afforded proof that there was a very large quantity of surplus water, and if Victoria got no more than a third—and he believed it was entitled to more, this colony would have a body of water sufficient to start any number of Chaffey agreements along the Murray.

J. H. Wheeler (Creswick), in supporting the agreement, said even if it cost the Government £20,000 to resume possession of the

Mildura run, it would be a good thing for Victoria. The carrying out of the scheme would educate the people in the use of water for irrigation.

Col. W. C. Smith (Ballarat West) said the bill should be made to apply to Victorians and not to the Chaffey Brothers alone. If the Minister for Water Supply were responsible for the introduction of the agreement which stated the land concerned to be almost worthless, he was a poor Victorian to run down his own country. He urged that the bill be withdrawn, and that a Mallee irrigation bill open to everyone in the country be brought down in its place.

J. Shackell (Rodney) said it would be better for Victoria to give away the whole of the Mallee if only it could be put to a better use than at present.

The third day's debate was begun on December 9, by G. W. Hall (Moira), who said he did not think the tone of the debate was fair to Messrs. Chaffey. He neatly turned the tables on Charles Young, one of the principal enemies of the bill, by reminding him that when speaking on the Pastoral Leases Bill in 1883, he said :—

" The worst punishment that could be inflicted on a poor man was to give him one of the Mallee blocks."

It was ridiculous to say the agreement shut others out, Hall proceeded, when there were 10,000,000 acres available for others in the same region. He did not think that because Victorians would not use the land themselves they should adopt a dog-in-the-manger policy and allow no one else to do so. It was assumed that the Chaffeys would make a tremendous fortune out of the scheme, but he would not grudge them that, because of the benefit to the State that would result from their enterprise. A member had said that every member voting for the bill was receiving a consideration for doing so. He indignantly denied the suggestion, stating that he personally had never seen the Chaffeys.

Shackell : The man who makes such a charge is unfit to be in the House.

Levien proved an implacable opponent of the agreement. It is interesting to record in the light of his future connection with Chaffey Brothers Limited, that he made the most extravagant allegations against the good faith of the Chaffeys as well as of the Government. He characterized the agreement as an outrage on the common sense of the House, and offered to find buyers for 250,000 acres along the Murray at £500,000 within seven days.

J. H. Graves (Delatite) said the way the Messrs. Chaffey had chosen the country they wanted said very much for their foresight and intelligence. They would get a 22-mile depth of as good land

as there was along the Murray. The land fronting the Murray was second in quality to none in Victoria. *The district would become some day the St. Louis of Australia.*

John Rees (Grant) pointed out that Levien, when Minister for Agriculture, was willing to give away the Mallee country in large runs. His present attitude was quite inconsistent with that policy. He contended even if the land were given free to the Chaffeys it would be advantageous to the State. What was wanted was experience in irrigation, and the State ought to be prepared to pay for this. He believed the agreement to be the finest undertaking ever entered into on behalf of the colony.

McLennan (Ararat) said 180,000 acres of this and adjacent land were let for £10 a year. Some years ago officers of the Lands Department said every man who attempted to settle that part of Victoria had been ruined because sheep could live there for three or four months in the year only. Yet this same land had suddenly become a fertile paradise because experienced men were prepared to spend large sums on it to bring it into useful occupation. It was utterly useless without irrigation. It was first overrun by wild cattle, but now every blade of grass or trace of green herbage had been eaten off by rabbits. This was the white elephant which seemed so precious to some. It did not contain a single creek, and often there was not a drop of rain for nine months at a time.

C. E. Jones (Ballarat West), of Bungaree fame,* said he was far from blaming any man for not having the happiness of being born in this country, and for being born in some other part of the British Empire. "This miserable agreement" was virtually giving away the birthright of Victorians to strangers.

Patterson said the object of the bill was to give two men 250,000 acres so that they could clear £1,000,000 out of it. It was indecent to force such a proposal through on the last night of the session.

Richard Baker (Wimmera) said it was important for the State to avail itself of the presence of men like Chaffey Brothers in order to afford a lesson not merely in irrigation, but in courage and enterprise. Whatever the result, the Chaffeys could not take away the land with them, and whatever they spent on it must remain.

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* C. E. Jones was a politician of a dubious type, who unexpectedly won political fame by a single phrase. Extremely obnoxious to the Irish residents of Bungaree, a Hibernian stronghold near the once fabulously rich Ballarat gold fields, he had the hardihood once to attempt to address a meeting at Bungaree. After waiting all evening for a chance to make himself heard, he seized, so the story goes, his opportunity during a lull in the clamor and delivered his speech in the following words: —"Gentlemen of Ballarat and Savages of Bungaree!" It was all he said, but it was enough, and greatly to the discomfiture of that and subsequent generations of Bungaree residents, the epithet has stuck to this day.

Peter Wright (Benambra) said the Government was giving away in perpetuity water needed by other parts of the State.

The second trial of strength came in the small hours of the morning, when a motion by Gaunson, that the debate be adjourned, was defeated by 14 votes to 41.*

Gaunson followed this obstruction up by a characteristic outburst, in which he said the measure was "conceived in America, born in iniquity, to be carried out by sin!"

Dr. L. L. Smith said the scheme represented an unheard of monopoly. Some time ago eight people, including himself, joined in a scheme to purchase 2000 acres of this very land for grape cultivation. They offered £1 an acre for it, but the Minister of Lands would not let them have it. He did not like to characterize the scheme as it ought to be characterized, and he could not but think that the two leading journals, *The Argus* and *The Age*, were improperly supporting the Government in this matter.

John Rees pointed out that there was undoubtedly good land in the Mallee, but it was useless without water. If the Chaffeys carried out their scheme they would employ 1000 men, where at present two or three shepherds only were employed. It would be a blessing to the whole State if the Chaffey Brothers succeeded in their enterprise.

And so the debate dragged on through the night. The Opposition criticism became more extravagant as the night wore on. Decency and common sense were forgotten. Bent did not hesitate to call the bill a swindle, and A. T. Clark (Williamstown) went one better, saying it was a "downright swindle." Bent then came into conflict with the Chair for calling the Minister of Lands (J. L. Dow) a rogue and a liar, terms he was forced to withdraw.

Then followed at five a.m. one of the most outrageous scenes in Victorian Parliamentary history. Bent alleged that Cureton, who was still associated with the Chaffeys, had told him some few days ago that the Chaffeys were sure of a majority, and didn't care what was done. He said he told Deakin next day of the conversation, thus imputing against the parties named irregular if not corrupt conduct.

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* The division list was :—

Ayes—Bailes, Jones, Col. Smith, Burrowes, Langdon, Vale, A. T. Clark, Patterson, Wright, Gaunson, Dr. Rose, C. Young, Graves, L. L. Smith.

Noes—W. Anderson (Creswick), Gordon, Outtrim, Graham, Pearson, Baker, Groom, Pierce, Cameron, Hall, Rees, W. M. Clark, A. Harris, Reid, Deakin, J. Harris, Sands, Derham, Keys, Shackell, Donaghy, Laurens, C. Smith, Dow, Levien, Staughton, Field, W. Madden, Tucker, Fink, McColl, Walker, Forrest, McLellan, Wrixon, Gardiner, Murray, A. Young, Gillies, Nimmo, Zox.

No one inside or outside the House took Bent's charges seriously, but they recoiled on Bent when C. W. Hall amazed the House by stating that Bent had told him every member who voted for the bill was receiving a monetary consideration for his vote. Brought face to face with this disgraceful imputation on the honor of George Chaffey and of Parliament, Bent's courage failed him. He withdrew the accusation and apologized for it, proffering the lame excuse for his shameless conduct that he said the thing in a joke.

L. L. Smith said this episode was staged to save the Government's face. He believed the whole thing to be a corrupt bargain.

At noon Bent suggested that the concession be thrown open to public tender by advertisement for two months, under the same conditions as in the agreement, and if no one else made a better offer for the land the provisional agreement made with Chaffey Brothers should be carried out. The Premier agreed to a short adjournment to consider the suggestion, and the House adjourned at 12.30.

When the sitting was resumed at 2.30, Premier Gillies announced that a compromise had been arrived at. Public tenders closing in two months would be called, and half the compensation payable for the resumption of the pastoral rights would be paid by the Government ; the other half to be paid by the successful tenderer.

Premier Gillies showed clearly by his speech that he realized the Government had placed itself in a false position, and that it was now possible for any speculative syndicate to secure the concession and then endeavor to sell George Chaffey his own idea :

" In accepting the proposal made to them," said the Premier, " the Government and their supporters have been mainly influenced by the consideration that the grand experiment that we were endeavoring to promote might be—and we sincerely hope and trust it will be—as successful under the new arrangement as we felt perfectly certain it would be under the old. (Cheers.) The only fear I entertain at all—and I expressed it freely to the leader of the Opposition—is that it is quite possible that under the changed order of things the gentlemen whom we thought would be able to give an education on an important subject to a large number of persons in the colony might not be successful in tendering."

Col. W. C. Smith was the only member who dissented from the compromise. The clause was amended, and the House adjourned after Bent had apologized for remarks made in the heat of debate. It had been sitting continuously for 25 hours.

The obstruction was renewed by a rump of the Opposition, headed by Gaunson and Jones, in the Assembly on December 14. It was a mere flash in the pan. The bill was read a third time and passed.

The main body of the Opposition was alarmed by the public indignation caused by its conduct, and even that sturdy die-hard, Col. Smith, was silent. The public had responded to the appeal to prejudice and passion, but not in the way the demagogues expected.

J. B. Patterson and G. D. Carter alone of the Opposition can be given credit for constructive contribution to the debate. Patterson's suggestion that the agreement should take the form of a grant of 10,000 acres as a gift, with a promise of another 20,000 acres when certain conditions had been complied with was a good one, and as the issue proved, would have been more advantageous to the Chaffeys than the vast area they were given the right to acquire. Carter's suggestion made in the early morning, following on hours of fierce debate, was more liberal. He proposed that the agreement be amended to permit the Chaffeys to take up 50,000 acres only to begin with, and if they fulfilled the contract, Parliament, if it chose, could make the balance available. This proposal, which was infinitely more equitable to George Chaffey than the final arrangement, would have been accepted by Premier Gillies and by Bent on behalf of the Opposition, but for the perversity of six die-hards—"The rowdy section of the Left" *The Argus* called them—who declined to agree to anything less than the rejection of the agreement.* That such a disgraceful *denoue-*

* Pointing out that only 14 members of the House could be induced to vote against the agreement, and that six "rowdies" had imposed their will on the House, *The Argus*, of December 20, stated:—"Six members stood out. This minority, composed of the well-known rowdy section of the Left, swayed the minority of 14. The minority of 14 swayed the House. And thus an agreement of which the House approved, of which the local residents approve, and of which the country approves, is set aside by a little group of men, whose judgment, whose motives, and whose honor do not require description. After the boasts in which we are accustomed to indulge about the perfection of our system of government, the intelligent foreigner would find it difficult to grasp the situation."

ment should have been possible was a travesty on representative government.

Considering its majority in the Assembly, the Government showed weakness in conceding the smallest point to an Opposition which had discredited itself inside and outside of Parliament by its disgusting conduct. The fact that charges against the personal honor of those supporting the agreement had been made, though perforce withdrawn, should have steeled the Government's determination. The decision to grant two months' delay by throwing the concession open to public tender was a betrayal of those who had assisted the Government, during a sitting which lasted for twenty-five hours, to defeat organized ruffianism. When victory was in sight Premier Gillies weakened, and gave the demagogues some color of excuse for their vileness.

George Chaffey was extremely mortified at the Government's unexpected display of weakness. He waited on the Premier and Deakin at once, and pointed out that the compromise was most unfair to him, and he would be forced to reconsider the whole position. The terms of the agreement having been broadcast, his plans had been divulged in detail, and it would be open to any speculator or speculators to secure the concession, irrespective of their qualifications for establishing an irrigation settlement. Under the new arrangement the highest tender or must win. This would mean that the benefit of the investigation on which he had spent months could go to others who would never have moved in the matter but for his enterprise.

The worst feature was that the concession could be secured for unworthy purposes, and he had already heard that one member of the Opposition who had proved a bitter enemy of the whole scheme was endeavouring to get it for himself. If this attempt succeeded he (George Chaffey) would be eliminated from the project of which he was the author. He was the only irrigation colonizing expert in Victoria,* and if the "concession" fell into the hands of speculators they would probably have the impudence to endeavor to sell it to him. He warned the Government that he would in no circumstances be associated in any capacity with anyone else who might successfully tender

* W. B. Chaffey had not yet arrived from California.

for the concession. He assured the Premier that he had no intention of tendering, but had no objection to his and his brother's name remaining in the Act, so that the position could be reviewed at the end of the two months' period.

The Premier excused himself by pointing out that under the Victorian Parliament's Standing Orders a mere handful of irreconcilables could hold up business in committee indefinitely. Deakin was most sympathetic and strongly urged George Chaffey to wait and see what the next two months brought forth before abandoning his project.

George Chaffey's fears that others would attempt to jump his claim were well founded. J. F. Levien, who had fought the agreement relentlessly in Parliament, thinking to secure its advantages for himself, set off post haste for London in a fruitless attempt to secure adequate backing to enable him to undertake the scheme. Curiously enough, fellow passengers on the ship that took Levien to London were Alfred Deakin, who was going to represent Victoria at the first Imperial Conference, and Dr. Cunningham, who accompanied him as representative of *The Argus*. Levien had boasted in the Assembly that he could immediately find a purchaser at £500,000 for the concession if it were thrown open to the public. He soon found that the land was worthless without George Chaffey's knowledge, and London capitalists would not touch his proposition.

The scandalous behaviour of the Opposition and the weakness of the Government were strongly condemned by the Victorian Press. *The Argus*, of December 11, admirably summed up the public feeling :—

" High-minded men are shocked and sickened by such proceedings as those of yesterday. Men of character in the House had to sit hour after hour and listen to vile abuse and cruel suggestion. They cannot reply in kind. Thus the rowdy became supreme in the legislature. The rough has his constituents, and should power ever pass into his hands he will be accompanied by the blackmailer. In this way democracies are first degraded and then they decay. It is difficult to find any justification for the fight of the fourteen members yesterday. There may be occasions when it is patriotic for a little band to face a majority, and in a dauntless spirit take the consequences. The justification for such an action is when the country is bitterly opposed to some policy of the majority, or when Parliament is surprised by a measure which the country, if it had

the opportunity, would probably condemn. But it is not so much as alleged that either of these conditions now exist. The Chaffey bargain has been before the country for months. Every journal in the land has published it either *in extenso* or in substance, and no one has the hardihood to say that there has been a popular demonstration against it. Not a Mallee shire council has protested. On the contrary, the members who represent arid districts aver that they are in the receipt of telegrams, letters, and resolutions, all stating that it would be a great thing for irrigation to have an irrigation colony started by experts. . . . America has prosperous irrigation colonies and prosperous irrigation industries now, but she has bought her experience with a price, and the people of this colony have grasped the idea that it would be well for us to have the benefit of the American experience without paying the American price. This is the common sense of the situation.

"If there were defects in the bargain, it was the duty of the critics of the Ministry to point them out. More than that, the Opposition had a perfect right to disagree with and to denounce the agreement. What, as we maintain, they had no right to do was, after a fair statement of their views, first to defy the majority, and then to vilify Ministers and members. For fourteen men to block the will of a majority of over forty, without a pretence of the country being behind them, simply shows how easy it is with our present forms to destroy Parliamentary institutions. . . . . .

"The scene and the language must have an effect upon the immediate career and the future character of Parliament. The members who can forget the strong charges, strongly stated against them, are not of much value as men. As to the compromise to which the Premier assented, we are doubtful as to its wisdom. The justification of an exceptional agreement was that the colony gained the experience of certain well-known practical irrigationists. As it is, the concession is to be put up to tender, and the bidder of the highest premium is to obtain it, whether he knows anything of irrigation or not. Any syndicate who may go into the affair as a speculation, and may make a mess of the whole thing, is to obtain the Mallee block, and oust the Chaffey Brothers, if it offers £100 more than that firm, or even £1 more. Yet, if the block falls into the hands of ordinary speculators, there will be no confidence in the scheme as an educational scheme, and confidence was the essential recommendation of the contract to irrigationists. The money test is not the sole test in taking a contract for the building of a house, and certainly it ought not to be the sole test—nor anything like the sole test—in a complicated matter of this description. Money may be one element, but the men are another."

CHAPTER XII

THE INDENTURE

"THIS ENTERPRISE HAS BEEN WELCOMED IN EVERY PART OF VICTORIA AS LIKELY TO ENRICH US WITH A NEW TERRITORY."—Extract from Speech by the Governor of Victoria, Sir Henry Brougham Loch, K.C.B., in opening Parliament on June 6, 1887.

MILDURA'S fate was in the balance during the first two months of 1887. In accordance with the terms of the *Water Works Construction Encouragement Act* as amended, virtually by six irreconcilables in defiance of the will of eighty-six members, the Government submitted the concession, as it had come to be called, to public tender, and the first advertisement offering it to the highest bidder appeared in the Victorian Government *Gazette* on the first day of the new year.

Seeing the prospect of Victoria losing the opportunity of opening up a vast area of waste land, other States, notably South Australia, sought to attract the attention of the Chaffey Brothers. By this time the younger brother, W. B. Chaffey, had arrived in Victoria. From that period till his death in 1926 he continued to take a prominent part in the affairs of the Mildura Irrigation Colony.

One day before the *Water Works Construction Encouragement Bill* had been finally passed, George Chaffey was waited on at the Yorick Club, Melbourne, by Mr. (afterwards Sir John) Downer, the then Attorney-General of South Australia. From the informal conversation which followed sprang the irrigation colony of Renmark. Downer invited George Chaffey to visit South Australia and investigate the possibilities of establishing an irrigation settlement upon the banks of the Murray in that State. He undertook, assuming a Crown land block were considered suitable, that the South Australian Parliament would make it available on more generous terms than those

offered by Victoria. George Chaffey accepted the invitation with alacrity, rightly considering this offer to be an effective answer to the Victorian Parliamentary Opposition. After thorough investigation the site of Renmark was finally selected.*

George Chaffey had been informed by Deakin that the Victorian Act as amended meant that the concession was his and his brother's, if no one else tendered. Deakin strongly urged both the Chaffeys not to abandon the idea of going on with the Mildura project, but to await the expiration of the two months' period before turning their thoughts elsewhere.

The Chaffeys declined to entertain this proposal, pointing out that if they rejected the overtures of South Australia they would run the risk of losing all chance of operating in Australia —in no circumstance did they propose to compete, by lodging a deposit, against outsiders for their own project.† They informed the Government that they proposed to go ahead with the South Australian negotiations, but would be pleased to recon-

* " . . . . . Now that the Messrs. Chaffey Brothers have intimated that they will not tender for the Mallee block, upon which it was proposed they should establish an irrigation colony, the Government contend that should no other tender be received within two months, the time provided for receiving tenders, there will be no obstacle to letting Messrs. Chaffey Brothers have the lands under the conditions of the original agreement, should they desire to take it up. There is, however, apparently very small prospect of the firm requiring the land, as they have had pressing invitations from both New South Wales and South Australia to take up their abode in those colonies. When Mr. Downer, the South Australian Attorney-General, was here, he had an interview with the senior member of the firm, and extracted a promise from him to visit the sister colony, stating the firm would be able to almost make their own terms with the South Australian Government, owing to the large extent of territory in that colony that had not yet been cultivated successfully. Messrs. Chaffey Brothers have a partiality for Victoria, but they are not disposed to waste time should they be able to make a satisfactory arrangement with the South Australian Government. . . . "

The Herald, Melbourne, December 17, 1886.

† The following newspaper extracts illustrate the course of events and the public feeling aroused by the Parliamentary obstructionists :—

The Argus, December 14, 1886 :—

" One of the members of the firm of Chaffey Brothers had an interview with the Minister of Water Supply yesterday, with respect to the action of the Legislative Assembly on Friday last. Mr. Deakin was informed that the firm consider that they have been unfairly dealt with, and they feel reluctant to proceed further in the matter. . . . . Mr. Deakin, while expressing his sympathy with the Messrs. Chaffey, strongly urged them to tender, and assured them that it was the general desire of the farmers throughout the colony that they should take up the land which the Government intended them to have, and establish one of their prosperous irrigation colonies in Victoria."

The Telegraph, December 17, 1886 :—

" It will be with unfeigned regret that the community will learn that Messrs. Chaffey Brothers have determined to withdraw from their proposal

sider the Mildura proposition at the end of the two months if no one tendered.

Despite the earnest efforts of J. F. Levien to interest London investors in the 250,000 acres of Mallee land to be had for the tendering, no tender had been received when the specified time had elapsed. Deakin had, in the meantime, set off to win imperishable fame at the First Imperial Conference, and George and W. B. Chaffey were immersed in the South Australian project.

The Government, alarmed lest the Mildura scheme should lapse, then asked George Chaffey if he were prepared to accept the agreement in the terms of the *Water Works Construction Encouragement Act* as amended.* Although by this time committed to establishing an irrigation colony in South Australia, George Chaffey had set his heart on the Mildura project, and he rightly considered that as the Government had now taken the initiative he would not allow the action of an irresponsible section of the Opposition to rob him of his heart's desire. He assured the Government that he and his brother were prepared to carry out the agreement as if nothing had happened. The Government thereupon instructed the Crown Law Department to put the agreement into legal form.

The result was the extraordinarily technical and complicated document afterward known as the Indenture. The

* Now that the two months had expired, the only material alteration in the original agreement was the provision that £10,000 had to be spent by the licensees within the first 12 months.

to establish an irrigation colony in Victoria. From an interview with a member of the firm, we understand that they consider they have been unfairly treated, and they will decline to enter into the competition which the Legislature, on the insistence of Messrs. Bent, Patterson, and Levien, has against its will, been forced to establish. . . . It was the experience, the skill, and the knowledge of the Chaffey Brothers which we desired to obtain, as offering a means for instructing our farmers in the new methods of culture they are invited to enter upon under the system of irrigation. *What does Mr. Levien or his syndicate know about irrigation or the secrets of intense culture?* Where is the experience in Victoria, outside of the visiting firm, which would justify the tenderers in binding themselves to the fulfilment of the conditions to which the Chaffeys were prepared to assent? We know that it does not exist. . . . There may be a speculative competition, intended to secure a concession which may be subsequently sold to advantage, but there can be no real effort to carry out the intentions with which the proposal was originally made. It will be a poor consolation to the farmers of Victoria to know that these advantages, which we have flung away, will be readily accepted by our neighbors, and that our loss will be the gain of New South Wales and South Australia."

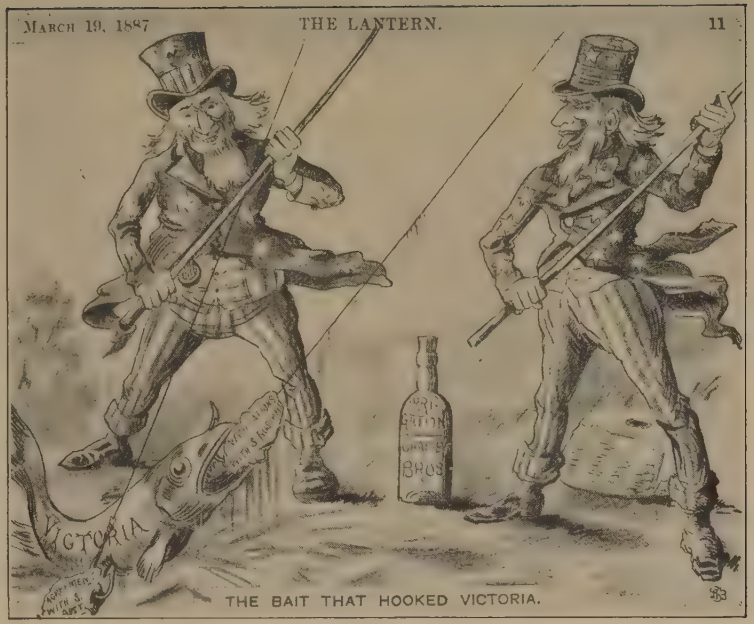
verbosity of this instrument contrasted strongly with the lucidity of the original agreement. It was responsible for many misunderstandings later, and indeed had a mischievous effect on the fortunes of Mildura. It related in legal form the agreement made by Deakin with George Chaffey in October 1886—and contained, in addition, a precise statement of the water right actually to be conferred on the licensees. This had not been defined in the agreement.

The Indenture was signed on May 31, 1887, by Sir Henry Brougham Loch, K.C.B., Governor of Victoria, on behalf of the Crown, and by George and W. B. Chaffey, and thus began what *Jethro Tull* termed "the grandest experiment in co-operative agricultural colonization the world had then witnessed."

The Indenture, whatever its shortcomings from the Chaffeys' viewpoint, certainly bestowed on them a magnificent and perpetual water right. If fully utilized it would have been equal to a rainfall of twenty-four inches at Mildura, double the average fall in this portion of the Mallee. Permission was given the licensees to divert from the Murray specified maximum volumes of water ranging from 20,000 cubic feet a minute in March, to 60,000 cubic feet a minute in September, October and November. In March not more than one cubic foot a minute was allowed for each twelve acres irrigated; in September, October and November one cubic foot a minute for each four acres was permitted to be diverted. Thus the quantity of water diverted was regulated by the season and by the number of acres under irrigated culture.*

The Indenture divided the Mildura Concession into three sections. Blocks "A" and "B" of 25,000 acres each had a frontage on the Murray of eight by a depth of about six miles. Enclosing these was block "C" of 200,000 acres, extending eighteen miles from the river. The Mildura town and part of the colony are located in Block "A," that nearer to the junction of the Murray with the Darling. Block "B" was reserved by Chaffey Brothers Limited as a private irrigation venture, but circumstances prevented its development by them. The Mildura settlement was concentrated on Block "A," and the section of Block "C," immediately adjoining block "B," was,

* For summary of the Indenture, see end of chapter.

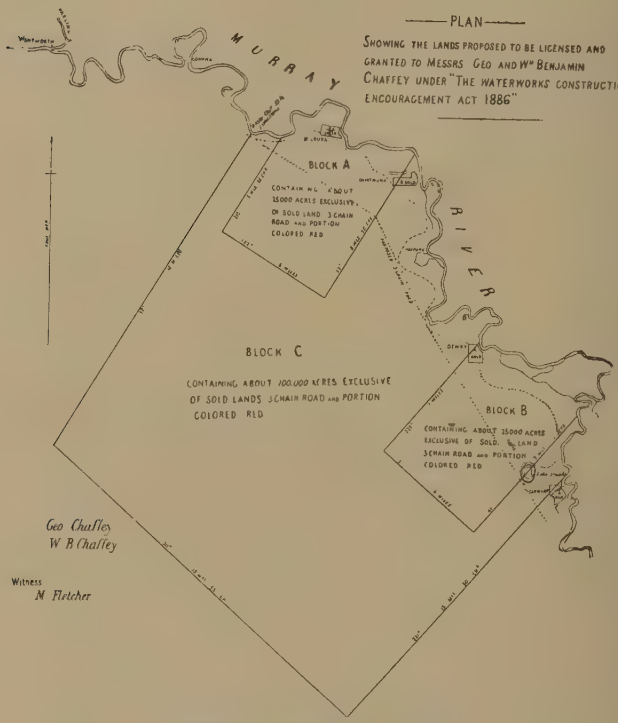


THE BAIT THAT HOOKED VICTORIA.

A cartoon published in an Adelaide periodical when Chaffey Brothers' acceptance of the Mildura concession was announced.

after the Chaffey regime, exchanged under authority of Parliament for the high portions of "C" adjoining Mildura now known as Red Cliffs.

Mildura was modelled on Ontario. Though physical conditions made the irrigation system necessarily different, it was


PLAN
SHOWING THE LANDS PROPOSED TO BE LICENSED AND GRANTED TO MESSRS GEO AND WM BENJAMIN CHAFFEY UNDER "THE WATERWORKS CONSTRUCTION ENCOURAGEMENT ACT 1886"
MURRAY
RIVER
BLOCK A
CONTAIN NG ABOUT 15000 ACRES EXCLUSIVE OF SOLD LAND 3 CHAIN ROAD AND PORTION COLORED RED
BLOCK B
CONTAINING ABOUT 15000 ACRES EXCLUSIVE OF SOLD LAND 3 CHAIN ROAD AND PORTION COLORED RED
BLOCK C
CONTAINING ABOUT 100,000 ACRES EXCLUSIVE OF SOLD LANDS 3 CHAIN ROAD AND PORTION COLORED RED
Geo Chaffey
W B Chaffey
Witness
M Fletcher

MILDURA IRRIGATION COLONY
Plan accompanying Indenture signed on May 31, 1887.

established on the same colonization principles. A town laid out on the same plan as Ontario was provided, with the object of mitigating the harshness of outback life in the Australia of those days. It was a colony founded with the same social ideals as Ontario, and though these were not attained at Mildura, that was not the fault of the Chaffeys. Power was taken in Deakin's Irrigation Act of 1886 to withhold

the issue of liquor licenses in irrigation areas, and George Chaffey resolved, for precisely the same reasons that impelled him to make Ontario a saloonless colony, to exclude bars from Mildura. He wished to protect the settlers from the degradation of excessive drinking, and to attract the very highest possible type of settler to Mildura.

The idea of a prohibition district had never been conceived in Australia before, so the announcement that no liquor licenses would be issued at Mildura created widespread interest at home and overseas. The strength of the reaction in Victoria against the hard drinking of the gold digging era was evidenced by the rise of giant "coffee palaces" in the metropolis and provincial cities, and the innovation was warmly commended by all responsible citizens. Unfortunately the experiment was not supported by public opinion as in Ontario. First came the sly grog shanties, then the clubs, which as centres of conviviality may just as well have been public bars, and then, long after the Chaffey regime, followed hotels licensed to sell liquor.

Other Ontario features which George Chaffey planned for Mildura were: the mutual water system; a noble spacious thoroughfare through the heart of the settlement on the lines of Euclid Avenue, with parallel avenues and intersecting streets as at Ontario, though at Mildura the horticultural lots were four times larger; and an agricultural college to be built by the founders and endowed with one-fifteenth of the land within the colony. Mildura still remains the most admirably planned of any Australian provincial town, though, due to lack of funds in earlier days, and a later lack of public spirit, its beauty has not been fully developed on Chaffey principles.

The organization of Mildura proceeded with a rapidity that astonished Melbourne. The Opposition in Parliament had given the Chaffeys a wonderful advertisement in Britain as well as in Australia, and every move they made was followed with the most intense interest. Simultaneously with the surveying and clearing of the allotments, the selection of a town site, and the laying out of the channel system at Mildura, proceeded the development of a great business organization in Melbourne with branches in every Australian capital, accompanied by a local and overseas publicity campaign which made the name Chaffey familiar in every centre of population in

both countries. The Chaffeys were the first to introduce into Australia the art of publicity in its modern form. They saw a magnificent opportunity in the reaction from the treatment to which they had been subjected by the Parliamentary irreconcilables, and kept the public informed of every move.

Possession of the Concession was secured in August 1887, and the first step was to hand over the rights and obligations acquired thereunder to a company—Chaffey Brothers Limited, which was incorporated on October 1, 1887, with a capital of £350,000 in 3500 shares of £10 each. The first directors were George Chaffey (Chairman), W. B. Chaffey and Stephen H. Cureton.*

W. B. CHAFFEY.
From a photograph taken in 1886.

To secure the ownership of a water right in perpetuity to the prospective purchasers of the land to be subdivided, the Mildura Irrigation Company, which came into such prominence later, was created on December 28, 1887.† The company was formed with a nominal capital of £12,500 in 25,000 shares of one shilling each ; thus there was one share for each acre of land in Block "A," which was first operated on. The first directors were George Chaffey (Chairman), W. B. Chaffey, S. H. Cureton, Wm. Paterson and Henry Williams.

* The Chaffeys transferred their rights under the Indenture to this Company for £202,500, of which they were to take £200,000 in shares of £10 each, fully paid up, and to receive £2500 in cash. They were further permitted to select 640 acres. Accordingly on October 3, 1887, Chaffey Brothers Limited issued the 20,000 shares to the two brothers and their nominees.

† In the Memorandum of Association of the Mildura Irrigation Company, the objects were stated to be :—

(1) To secure to all persons who shall become members of the company, and shall be holders of any parcel or parcels of the 250,000 acres, more or

The Mildura Irrigation Company was a mutual organization on the lines of the Holt-Chaffey companies which, in the early eighties, solved the water right problem in Southern California. One share in the company for each acre of land purchased by settlers from the Chaffeys was issued to the purchaser. The conditions of sale set out that each share in the Mildura Irrigation Company would be issued as appurtenant to, transferred with, and inseparable from each acre of land. Each share entitled the holder to one vote in the control and management of the irrigation works, and every land-holder would be required to sign an agreement (drawn up under the direction of the State Commissioner of Titles) binding him, in the event of parting with the land, to transfer it to the next and successive holders on the same conditions in respect to inseparability of water right and liability to pay rates and charges fixed by the Mildura Irrigation Company.

The conditions of sale also set out that each land-holder would be required to pay a yearly charge levied by the Irrigation Company to defray the working expenses of the irrigation machinery, to cover the cost of distribution, and to maintain same in good order and condition, but there was to be no charge for interest upon cost of pumping, machinery and irrigation works, which were to be all provided by the promoters.

Chaffey Brothers Limited,* by an agreement with the Mildura Irrigation Company Limited, dated January 25, 1889,

* The necessity for such an organization had been foreseen by Alfred Deakin in his *Irrigation in Western America*, which contained the following passage:—

". . . . In any introduction of irrigation into Victoria, it will be necessary to provide against separate ownership of land and water, except when water may belong to State or is sold under its regulations."

The Mildura Irrigation Company was the fulfilment of that need.

less, of Crown lands under license by indenture dated the 31st day of May, 1887, from Her Majesty to George Chaffey and W. B. Chaffey, a sufficient water right to be held with and to run with such parcels as a perpetual easement within the intent of the Covenant in that behalf by the licensees under the said license contained.

(2) To give every reasonable facility for supplying water to other persons than members of the company as far as may be desirable or required by the Minister of Water Supply for the time being.

(3) To acquire or take over from Chaffey Brothers Limited, or from any other persons such waterworks, machinery or other property as have been or may be constructed or established in connection with any part of such lands or may be necessary or proper for any of the above objects.

(4) To enter into any contracts or agreements with Chaffey Brothers Limited, for the supply of water to the company or for carrying into effect all or any of the objects of this Memorandum of Association.

handed over to the Irrigation Company the water works and channels at Mildura, which thus became the property of the settlers, held in trust for them by the Irrigation Company, in which each had a share proportionate to his holding.

These facts are of great importance in the light of later developments, for though accepted without question by all parties for some years, the company became and remained until the final elimination of the Chaffeys a storm centre at Mildura. The remarkable circumstances which led up to this will be related in a later chapter.

Working day and night, as only men possessed by a great idea can work, George and his no less enthusiastic brother had the satisfaction of seeing an efficient and powerful business organization grow around them within a few months. W. B. Chaffey, who won golden opinions in Victoria from the beginning, had already taken up his residence in the old station homestead, and George divided his time between Mildura, Renmark, Adelaide, and Melbourne. He had laid out the town and the channel system, and planned the subdivision of Block "A" before the end of 1887, in addition to supervising the business end in Melbourne, designing the powerful machinery required for his pumping system and providing for a temporary pumping plant.

The brothers looked to England to supply not only most of the prospective settlers, but a substantial proportion of the large capital required to develop Mildura. Soon after the inception of the company they took into their service James E. Matthew Vincent, F.R.G.S.,* one of the most able men in the

* An old Blue Coat boy, Vincent was a man of great parts as journalist and business man. In the early sixties he conducted *The Coventry Herald and Free Press*. It is said of him that he refused an offer of £30,000 from Joseph Chamberlain for his interest in this journal, because the sale would have involved a reversal of the policy of the paper. In 1872 he became a warm champion of the cause of the down-trodden agricultural laborers of Warwickshire, and for five years edited *The Laborers' Union Chronicle*, published at Leamington. He first came to Australia in the late seventies, to study the Queensland sugar industry, and on a second visit made the acquaintance of the Chaffeys, who were attracted by his ability and by his warm generous nature. As Chief Commissioner in England for the Chaffey Irrigation Colonies, Vincent not only organized a steady flow of settlers from England to Australia—self-supporting emigrants, who did not receive nor ask for a penny piece from Government—but obtained large sums from London investors, which saved Mildura and Renmark from absolute extinction. Vincent was the most successful immigration agent Australia ever sent abroad, and his great services to the State of Victoria cost Victoria nothing. He died in 1910 at the age of 73.

State at the time, and about a year afterwards despatched him to London as Chief Commissioner in England for the Chaffey Irrigation Colonies.* Vincent was the author of the famous Chaffey Red Book, *The Australian Irrigation Colonies*, published in London, which aroused so much criticism in after years. One prominent figure in the anti-Chaffey agitation of the middle nineties described it in a phrase which obtained great vogue among the malcontents at Mildura in 1896— A gilt and scarlet bundle of misrepresentations, he libellously termed it; but if we apply the test of time to this book, which undoubtedly attracted hundreds of settlers to Mildura, we find there is

CHAFFEY BROS.' LETTERHEAD

little in it which has not since been verified. Certainly some of the estimates of cash returns (though not of yield) from fruit-growing at Mildura were exaggerated, but, in the main, it set out what proved to be the actual position, and those prosperous Mildura residents of to-day whose parents were induced by The Red Book to leave England have little reason to complain of it, or of the work of James E. Matthew Vincent.

One statement in the Red Book which certainly caused much trouble later was the estimate of six shillings an acre a year

* The Chaffeys were fortunate, too, in the selection of a Secretary for Chaffey Brothers Limited. This was James F. Kilburn, then and still a well-known Melbourne business man, who served Chaffey Brothers with great ability and loyalty. In 1887 Kilburn was an engineer employed by McLean Brothers and Rigg, then the largest machinery merchants in Melbourne, with whom George Chaffey placed an order for plant. The relations of the Chaffeys with Kilburn was of such a mutually cordial nature that they invited him to enter their service. Kilburn were Secretary to Chaffey Brothers Limited from its inception until the firm went into voluntary liquidation on December 10, 1895.

for water charges. Many Mildura residents rose against the Chaffeys when the rate increased to eighteen shillings, claiming they had been deceived. This estimate was only an estimate after all, but that the increase was not due to any weakness in the Chaffey scheme is shown by the fact that under the Mildura Irrigation Trust, which succeeded the Mildura Irrigation Company, the cost of water has risen as high as £5 an acre a year.

Never before in Victorian history had a private undertaking attracted such universal interest. The offices of Chaffey Brothers Limited were thronged with eager inquirers from the beginning, and applications for land flowed in long before the land was ready for settlement. Surveying and subdivision of the first lots to be placed on the market occupied some four months, and it was not until the beginning of 1888 that settlement actually began at Mildura, but for some years the influx of land seekers and home builders into that remote corner of Victoria was the most surprising event in current Australian history. The magic of the Chaffey touch transformed the wilderness into a Promised Land. Victoria was amazed at the eagerness shown by newcomers to settle hundreds of miles from marvellous Melbourne; to occupy a territory so long despised and neglected. A miracle was happening in their own time, and the day of the dingo and the rabbit had passed away for ever. Men were making homes and gardens in that "broad expanse of hopelessness and misery."

NOTE TO PAGE 148—THE INDENTURE.

The following masterly digest of a most involved legal document was made in 1893 by the Chief Engineer for Water Supply, Stuart Murray :—

I. This Indenture bears date May 31, 1887, and is made under the provisions of the Waterworks Encouragement Act 1886.

II. It is provided that in consideration of certain expenditure hereinafter stipulated on the part of the licensees, their executors, administrators, and assigns, Her Majesty grants to them, subject to the conditions herein set forth, a license to occupy 50,000 acres of land, blocks A and B on the plan, for the term of twenty years.

III. The licensees, their executors, administrators, and assigns, in respect of irrigation works and permanent improvements on the land, shall receive from time to time Crown grants at the rate of one acre for every £5 so expended. If the expenditure exceed £5 per acre in all, the balance may be credited in respect of the further area of 200,000 acres hereinafter mentioned. But, in respect of lands subject to flooding, Crown grants shall be issued at the rate of one acre for every £2 of expenditure; but not more than 10,000 acres in all shall be reckoned as subject to flooding.

IV. At any time not less than three years after the date hereof, the Governor may issue a license to the licensees, their executors, administrators, and assigns, to occupy 200,000 acres of land, block C on plan, for a period of twenty years from the date of the license.

V. In respect of the area of 200,000 acres, Crown grants will be issued at the rate of one acre for every £1 of expenditure, and of a payment to the Treasury of a further £1 per acre.

VI. Disputes as to the amount of the expenditure, or as to the sufficiency of the works are to be settled by arbitration.

VII. The licensees shall not sell more than 80 acres of fruit-growing land, or 160 acres of agricultural land to any one person. They shall not retain in their possession, or in that of their agents, more than 5000 acres of cultivated and irrigated land.

VIII. The licensees, their executors, administrators and assigns, shall be entitled to divert water from the River Murray for irrigation, etc., as follows :

CUBIC FEET PER MINUTE.

Jan.	Feb.	Mar.	April	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
COMPENSATION WATER TO PASS DOWN RIVER.											
30,000	24,000	20,000	24,000	30,000	60,000	60,000	100,000	200,000	240,000	150,000	60,000
MAXIMUM SUPPLY, SUBJECT TO COMPENSATION.											
30,000	24,000	20,000	24,000	30,000	40,000	48,000	48,000	60,000	60,000	60,000	40,000

Number of acres in respect of which only, under irrigated culture, each cubic foot per minute may be taken.

8	10	12	10	8	6	5	5	4	4	4	6

And this license to divert water shall be for 25 years, renewable always for successive periods of 25 years if the covenants be duly observed. But herein the licensees, their executors and administrators shall not be answerable for any breach by their assigns, nor shall their assigns be answerable for any breach by the licensees, their executors and administrators. The water right shall be subject to Her Majesty's right to divert or authorize diversions above Mildura, so long as such diversions would not prejudice the right hereby conveyed.

IX. The licensees, their executors, administrators and assigns will, within 20 years from the date hereof, expend on the 250,000 acres of land the sum of £300,000 in irrigation works, in accordance with general plans approved by the Minister, and in permanent improvements as follows :—In the first five years £35,000, of which £10,000 shall be in the first year ; in the second five years, £140,000 ; in the third five years, £75,000 ; in the fourth five years, £50,000.

X. The licensees, their executors, administrators and assigns shall submit for the approval of the Minister plans of all meters, gauge staffs, and apparatus for measuring the water taken from the river ; and shall construct such in accordance with such approved plans ; and they shall properly maintain all such, and shall make no alterations in them except in accordance with plans in like manner approved by the Minister. They shall also construct such works for the conveyance and distribution of the water so taken as shall be best adapted for the irrigation of the whole of the 250,000 acres of land the subject of this agreement. They shall not divert water from the river in excess of the authority hereby granted. The water diverted shall be used for

irrigation, etc., of the 250,000 acres of land, and subject thereto they will, if required by the Minister, sell the balance to other persons at rates approved by the Minister.

XI. They will have all engines and machinery made in the colony, except such as may be necessary for patterns.

XII. They will destroy all vermin.

XIII. They will provide all bridges for crossing on channels, to the satisfaction of an officer appointed to inspect, and will make and maintain all such roads as the Governor may direct.

XIV. They will, within five years from the date of the license, have works established for fruit-drying, preserving, and canning; and will carry on the business during the currency of the license.

XV. They will set apart one-fifteenth of all irrigated land, not in one compact area, but in detached blocks, as an endowment for an agricultural college. And as soon as 100 families are resident on the demised land they will build an agricultural college.

XVI. In the event of any breach of the covenants of this agreement by the licensees, their executors, administrators, or assigns, or of the conditions of any Crown grant issued under it, the Governor may, within three months of the same being known to the Minister, give notice calling on them to show cause why such should be permitted, or may require to have the breach rectified within a time named in the notice. If no sufficient cause be shown, or if the breach be not remedied, the Governor may remedy the same at the cost of the parties. Or if the breach be deemed sufficiently serious he may determine the license and resume the licensed lands, except such parts thereof as have been sold for valuable consideration, or conveyed in trust for the agricultural college.

XVII. The licensees will insert all necessary conditions for giving effect hereto in all grants and licenses issued by them, and the Governor may make regulations accordingly.

XVIII. The cost incurred in securing settlement on the land may, if the Governor think fit, be reckoned as substantial and permanent improvements within the meaning hereof.

CHAPTER XIII

THE WILDERNESS WON

"*THE theatre of a grand experiment now fairly started in the interests of human happiness*"—Thus the Bishop of Ballarat (Dr. Thornton) described Mildura, in an article published in *The Ballarat Star* of April 3, 1888, recording his first visit to the new colony. From the beginning of the year the once desolate river bank had become a centre of industry the like of which had never been seen on the Murray, and when the zealous bishop held the first Anglican service in Chaffey Brothers' workshops he had a congregation of eighty-five. There were already 250 residents in the colony, although work had been in progress only since the previous October.

In order that the reader may readily grasp the problems that confronted George Chaffey, it must be explained that the Murray has carved through the Mallee country, which comprises North-Western Victoria, South-Western New South Wales, and the Murray lands of South Australia, a tortuous channel 700 miles long, extending from Swan Hill in Victoria to Rhine Flat in South Australia. Its flood course varies from one and a half to two miles wide, and the river in its sinuous way persistently sweeps from one edge of its bed to the other, so that steep white, red and yellow cliffs alternating with low red-gum and box-clad banks over which the winter flow spills, form a characteristic Murray panorama. Each of these flooded bends has its billabong, an apt aboriginal term meaning dead water, which is simply the old abandoned course of the stream. Mildura was a typical example of this class of scenery. Upstream was Red Cliffs just below Block "B"; at the homesteads were smaller cliffs and rocky reefs; and immediately below was White Cliffs, now Merbein. These were the principal places where the original Mallee land, known by its red sand, Mallee scrub and pine ridges, abutted on the river. This was the soil which George Chaffey knew would prove highly

productive when irrigated, but the capacity of centrifugal pumps in those days was not what it is now—they could be relied on for lifts up to thirty-five feet only—and the hinterland beyond the cliffs, the Promised Land of George Chaffey's dreams, ranged up to ninety feet above summer level of the river.

At the billabongs in the flood bends, the high land after aeons of weathering sloped down to the flats. George Chaffey saw his opportunity in this feature, and resolved to utilize King's Billabong, which terminated some seven miles above the homestead, as a storage reservoir, and to raise the water by a series of pumping stations, placed at different levels, to the high land which he desired his channels to command. King's Billabong was about five miles long, and when filled by the winter flow of the river had an average width of 450 feet, and a maximum depth of thirty feet. It was thus a natural reservoir of immense size, with a capacity level of over twenty feet above the river. George Chaffey resolved to place a powerful pumping plant at Psyche Bend, the upstream point at which King's Billabong joined the parent stream, to keep it full when the river was low; and another on its inland brink to pump into the channel system, the water to be raised thence to the required levels by a series of steps as it were. The billabong, a long sausage shaped lagoon, needed only to be locked at each end to answer all requirements. A channel four feet deep and 100 feet wide connected the river with the billabong at Psyche Bend.

A few days' driving through the scrub and George Chaffey had, with a wave of his hand, as it were, marked out the main lines of reticulation. Later the surveyor and his party found the level and fixed the channel lines almost exactly as the master mind had first visualized them.*

Apart from the different treatment required by varying physical conditions and engineering problems, Mildura was a larger scale replica of Ontario. Flanking the town, the social and business centre of the colony, which was placed on the

* E. W. Cross, the Chaffeys' head surveyor, is notable in British history for having laid out the city of Suva, the beautiful administrative seat of the Fiij group.

river bank, was a belt of villa allotments, forming a suburban residential area, and beyond these lay the horticultural lots.*

The chief considerations in the choice of a town site were convenience for river traffic and proximity to the land to be occupied by the first settlers. A suitable location was found on the river bank three-quarters of a mile above the station homestead, with the landing place, the site of the present wharf, as central point. The new town, which George Chaffey decided should be named Mildura, was, like Ontario, bisected by a great arterial thoroughfare intended by the Chaffeys to become a rival of Euclid Avenue. This was named Deakin Avenue, in honor of Alfred Deakin, prophet and precursor of the irrigation era. Beginning at the river bank, it was laid out in a straight line for five miles through the heart of the colony. Deakin Avenue would be to-day the finest thoroughfare in Australia had it been tended, developed and improved in the Chaffey spirit. Three chains wide, it was planted under the direction of W. B. Chaffey with a double row of Moreton Bay figs and sugar gums on each side. Two seventy-feet carriage roads and two eight-feet footways were provided for, and a space was reserved in the centre for a tramway.

The town was laid out on the rectangular plan. The thoroughfares running at right angles to the river and parallel with Deakin Avenue were termed avenues, and those cutting Deakin Avenue and parallel to the river were named streets. The only

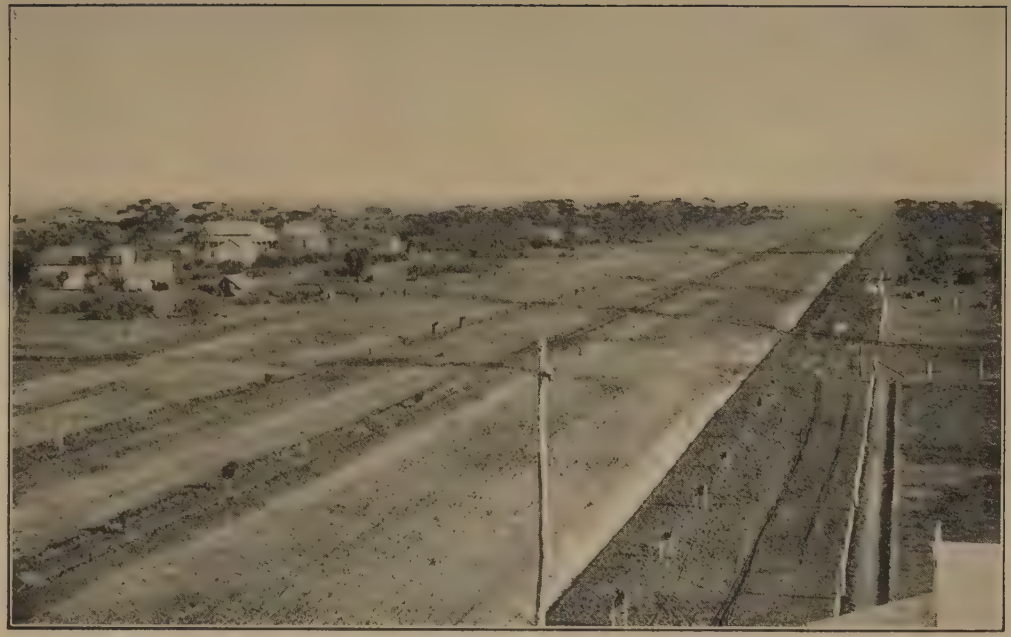
* The town site of 1000 acres was divided into a series of 33 x 155 feet lots, originally sold at £25 each. The suburban area was cut up into two and half acre lots, priced at £100 each. The enhanced value of these, once the settlement was on its feet, enabled the fortunate original purchasers to reap a rich harvest. The horticultural lands were surveyed into ten-acre rectangles, the highest corner of each commanded by the channel system. These were offered at from £20 to £25 an acre, according to location, the price including a water right represented by one fully paid up share in the Mildura Irrigation Company for each acre purchased, pumping plant, channels, conduits and pipes provided by Chaffey Brothers Limited. An important and convenient innovation designed to attract settlers of small means was introduced. The Chaffey time-payment system was the first of its kind known in Australia. Town or villa sites or farm land could be acquired by a small deposit, the balance spread over ten years. The terms of purchase of horticultural land were :—Cash £2 an acre on application, and the balance at transfer with a discount of two and a half per cent. ; time payment, £30 deposit on each ten-acre lot, and £30 on allotment, the balance, £110, with five years' interest at five per cent. added, divided into sixty monthly instalments of £3 19s. 2d. a month, or if on ten years' purchase, £2 7s. 6d. a month. Government Certificates of Title were issued for all land purchased, whether by cash or time payment. In the second case, the company took a mortgage as security.

exception was Cureton Avenue, a fine thoroughfare following the contour of the high land on the river bank.

George Chaffey's channel system was, and is to this day, regarded as a marvel of skilful engineering, a simple and economical solution of the difficulties created by the physical features of the *terrain* already described. There were four main distributing systems—the 30-ft., 50-ft., 70-ft. and 85-ft. levels, these heights calculated from the summer level of the Murray.* In April, 1888, six miles of channels had been completed, and the subsequent progress is indicated by the 325 miles of channelling completed less than three years later. Following the contour of the country, the channels ran along the ridges on a uniform fall of six inches to the mile. The average cost of clearing the site for these channels was £35 a mile, and the construction of a fifteen-feet base channel cost £320 a mile.

The permanent pumping plant which George Chaffey designed for Mildura had to be specially manufactured in England, and was not fully installed until three years had elapsed. It was essential that irrigated land should be available as soon as the demand arose. The problem of supplying Mildura with water in the interval was solved with ease by George Chaffey's fertile and resourceful mind. He purchased an old river boat, the *Jane Eliza*, and converted her into a pumping barge, fitted with two 20-inch centrifugal pumps. This kept King's Billabong full in the early days of Mildura, and thus the *Jane Eliza* advanced the Mildura irrigation era by nearly two years. A temporary plant consisting of two steam engines and one six and one 18-inch centrifugal pumps, originally raised the water from King's Billabong into the 50-ft. channel, from which the first irrigated land at Mildura was supplied. This promptness in meeting a situation, ever a striking characteristic of George Chaffey, enabled the settlement to be permanently established long before the complete plant was installed. The *Jane Eliza* was thus an important factor in Mildura beginnings. When her pumps were dismantled she was again engaged in the

* The main channels were from 15 to 25 feet wide at the bed, with side slopes of one vertical in two horizontal, four feet in depth, and designed to carry a volume of 60 cubic feet a minute for 24 hours once in each month for every ten acres commanded. This was equal to a gross depth of 12 inches over all the land commanded during the full summer season of five months.



The Beginnings of Deakin Avenue, Mildura

river trade, and lasted until she unfortunately struck a snag and sank a few years ago.*

The permanent pumping plant at Mildura, which, anticipating somewhat, will be described now, was the largest ever assembled in Australia. The surprising fact that the gigantic pumps built to George Chaffey's design by English manufacturers are still in commission after nearly forty years of continuous service, is evidence not only of the designer's skill, but of the excellence of British workmanship. Since George

THE JANE ELIZA

as she appeared in the Sixties. This picture is taken from an illustration in *Knocking About*, recording the adventures in the Murray Valley of Augustus Baker Pierce, edited by Mrs. A. T. Leatherbee, and published by the Yale University Press, in 1924. Pierce was commander of the *Jane Eliza* in the late sixties.

Chaffey drew the plans of the Mildura pumps, the world has witnessed a mechanical revolution, which has relegated to the scrap-heap most mechanical contrivances of forty years ago, but the Chaffey engines have survived all these sweeping changes, and are filling Mildura's channels with the water of life at the present day.

Confronted with the problem of raising a huge volume of water (up to 150,000 gallons a minute would ultimately need

* She still lies buried in the mud at the bottom of the Murray, just below Mildura wharf. The *Jane Eliza* was the first steamship to provide a regular service between Wentworth, at the Junction of the Murray and the Darling, and Goolwa, before the Morgan railway was built.

to be diverted), George Chaffey felt that no plant he had ever seen would be equal to the task. His experience on the Great Lakes in the seventies had shown him that the reliability and capacity for continuous effort of marine engines made them suitable for the class of work required at Mildura. So he decided to design two special triple expansion engines with four centrifugal pumps fitted direct to the driving shaft of each engine without gearing, one to be located at Psyche Bend, five miles above the town to maintain flood level in King's Billabong, and the other to operate at No. 3 (Billabong) station, about two miles nearer the town to make the first lift into the channels at the 30-ft. and 50-ft. levels. For the first time in engineering history, direct-acting triple expansion engines were to be used for driving centrifugal pumps.

The idea excited a controversial storm in Australian and English engineering circles. The hostile contention was that a triple expansion engine could not be worked at sufficient speed to develop full pump efficiency by direct drive. The Chaffey designs, which were entrusted to the celebrated firm of Tangyes Limited, caused a vigorous controversy in *Engineering* and *The Engineer*, two of the leading British technical journals. Tangyes would not take the responsibility for the design, and cast the word "Chaffey" on the engines instead of their own name.*

* The Chaffey engine at Psyche Bend was of 1000 maximum I.H.P. and 875 normal H.P., operating four 40-inch each centrifugal pumps driven by a triple expansion engine with a high-pressure 16½-inch cylinder, middle-pressure cylinder 24½ inches, and two low-pressure cylinders each 31 inches diameter, stroke 18 inches, designed to run about 160 revolutions a minute, with a steam pressure of 140 pounds. The reputed duty of the plant was 120,000 gallons, equal to 19,200 cubic feet a minute. The actual work required to lift the volume stated to a maximum height of 16 feet was 582 horse-power, thus demanding an actual efficiency of .667 of the normal indicated power. The Psyche Bend engine could throw 650 tons of water a minute.

At the Billabong (No. 3) station was another Chaffey engine, a precise duplicate of that at Psyche Bend, fitted when complete with four centrifugal pumps each of 20 inches delivery to raise the water 50 feet above summer level. The vertical lift through a rising main of 48 inches diameter varied from 30 to 35 feet, according to the level in the Billabong. The reputed duty of this plant was 10,000 gallons per pump, or 40,000 gallons, equal to 6400 cubic feet a minute in all. Taking the maximum water right as a basis, this plant was capable of irrigating 25,600 acres. The split case principle was introduced for the first time in Australia in these pumps.

Most of the water discharged by the Billabong pumps flowed along the 50-ft. channel towards the town to Nicholl's Point, where was installed a 500 horse-power engine, also designed by George Chaffey. At Nicholl's Point the flow was divided into three parts. The smallest followed

Tangyes took a keen interest in the experiment, and Mr. (afterwards Sir Richard) Tangye, the generous donor of Australia's only Shakespeare First Folio, now in the Mitchell Library, Sydney, came to Mildura specially to see them in operation, and expressed gratification at their performances. We have the authority of Stuart Murray for the statement that "engines of better workmanship and execution were never turned out."

There were four main systems of channels, each with its own pumping plant, commanding by gravitation in 1893, 29,950 acres :—The Billabong system (Psyche Bend, Billabong and Nos. nine and ten stations), 26,020 acres ; the Homestead system, 1630 acres ; the Ranfurly system, 450 acres ; and the town system, providing a domestic supply for the town and villa areas, 1850 acres.

The height of the colony above the river made pumping by a single direct lift impracticable, and though, when the water rates began to rise in the later years of the Chaffey regime, there were loud complaints on this score, no remedy has yet been discovered. Judged by the experience of forty years, George

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the 50-ft. channel for the irrigation of the 560 acres commanded by it ; the largest was raised to the 70-ft. level, and released into a channel system, which in 1895 commanded 17,900 acres, and the balance was pumped into the 85-ft. channel, which served some 1870 acres. The pumping plant consisted of two Allan's 20-inch delivery centrifugal pumps lifting the water from the 50-ft. to the 70-ft. level, through a rising main of 330 feet. The same pumps at first also raised the water into the 85-ft. channel. The two pumps had a capacity of 20,000 gallons, equal to 3200 cubic feet a minute, giving on the basis of the maximum water right, a cubic foot a minute for every four acres irrigated, a duty of 12,800 acres. At No. 9 station water was raised from the head of the 50-ft. channel into the 70-ft. No. 2, whence it flowed to No. 10 station, to be lifted into the 90-ft. channel, commanding 5020 acres, and requiring on the maximum basis of four acres per cubic feet a minute, a supply of 1255 cubic feet, or 7844 gallons a minute. The No. 9 plant consisted of a single 20-inch Tangyes centrifugal pump, with a reputed duty of 7500 gallons or 1200 cubic feet a minute. The plant at No. 10 station was a duplicate of this.

The homestead system comprised a 20-inch Tangyes centrifugal pump, raising water direct from the river to the 35-ft. level. This plant, operated by a compound semi-portable engine, had a reputed duty of 7500 gallons (1200 cubic feet a minute). The Ranfurly system was a small independent plant, raising water direct from the river.

At the town station the engine was a duplicate of that used in the homestead system, operating a pair of Blake's duplex plunger pumps, with 8-inch deliveries, pumping into a 25-inch main at the top of the cliffs in Deakin Avenue, reinforced at the intersection of Deakin Avenue and the 70-ft. channel by a temporary pump driven by a portable engine, to supply a small area of orchard lands adjacent.

Chaffey's pumping system has confounded all the critics. It is still the heart of Mildura, maintaining through its hundreds of miles of arteries a steady flow of the fertilising Murray water. Including installation costs, Chaffey Brothers had spent £50,000 on pumping machinery before 1890.

When the horticultural lots were first offered to the public, as an attraction to purchasers, an undertaking to clear and plough the land was given. This practice, owing to the pressing demands for land, had to be discontinued after March, 1888, and the land henceforth was sold in its natural state, except that water was brought to the highest corner of each lot sold. Chaffey Brothers Limited, for years after, however, continued clearing operations under contract for settlers. Before active operations were begun at Mildura, George Chaffey had resolved to obtain the most up-to-date steam plant available, not only to enable the work to be done rapidly without sacrificing efficiency, but to impress the public with the whole-hearted determination of Chaffey Brothers Limited to make Mildura an object lesson for Australia. Through T. K. Dow he made contact with Peter McLaren, one of the most popular of the numerous large-hearted and optimistic individuals associated with early Mildura. He was a younger brother of the heads of the well-known firm of J. and H. McLaren, traction engine and implement makers, Leeds.*

Peter McLaren was the Melbourne representative of his firm in 1887. One day at Koo-wee-rup he met T. K. Dow, who told him that George Chaffey was looking for cultivation machinery for use at Mildura. This gave him the idea that a large parcel of machinery sent out on consignment to Gibbs, Bright and Company, and left on their hands, might suit Chaffey Brothers. He first met George Chaffey at the Collins Street office of Chaffey Brothers, in April 1887. George Chaffey accepted McLaren's offer of a month's free trial of the plant, which included several traction engines, a steam cultivator, steam plough and a large steam harrow.

* This firm was noted for manufacturing machinery designed to overcome cultivation problems. One brother, Henry, had designed for the French Government, alarmed at an outbreak of phylloxera in Algiers, a unique scarifying implement, which tore up the ground to a depth of 30 inches. Another brother was knighted during the Great War for munitions services. The father of the three brothers was a cousin of Sir Henry Campbell-Bannerman, the great Liberal Prime Minister of England.

Getting this heavy machinery to Mildura was a problem for those days. McLaren rode on horseback all the way to Mildura—an eighteen days' journey—seeking an overland route. Finally the plant was taken by train to Echuca, loaded on barges and towed five hundred miles down the river to Mildura. In 1887 one Hugh Victor McKay, then an unknown farmer, afterwards destined to become a foremost Australian captain of industry, was struggling for recognition. His claims for the harvester he invented in 1884, which revolutionized the garnering of wheat in Australia and abroad, had evoked incredulity and even ridicule. In 1888 he established a factory, the parent of, probably, the largest manufacturing industry in Australia. When McLaren reached Echuca with his machinery, he was asked by H. V. McKay, who had come there to attend the annual agricultural show, for the loan of a tractor to enable a demonstration of the harvester to be given. McLaren consented, and the harvester, hauled by a Chaffey tractor, performed all that the inventor claimed for it. This was the first time the now world-famous Sunshine harvester was hauled by steam power at a public demonstration.

The machinery was safely landed at Mildura, and clearing was begun. The removal of Mallee roots, though a serious problem without powerful plant, was child's play for the traction engines. This spectacular method of preparing the Mallee land for cultivation excited wide interest throughout Victoria. Early in 1888 there were three traction engines at work on the settlement. By 1890 these had increased to nine with a proportionate increase in the other plant. In January 1888, the Chaffeys asked Peter McLaren to remain in Mildura as their mechanical engineer in chief. He accepted the offer, and installed the Mildura pumping plant. On May 7, 1889, he married Emma, George and W. B.'s only sister, who had come to Australia with Mrs. George Chaffey.*

The first official report on Mildura was made by the Chief Engineer for Water Supply (Mr. Stuart Murray), on April 16,

* Peter McLaren remained at Mildura till the end of the Chaffey regime. After a short sojourn at sea he became chief engineer for David Syme, proprietor of *The Age*. Mr. and Mrs. McLaren now reside in Whittier, Southern California.

1888. The two most important points it established were :—

(1) Over £18,000 had been spent in improvements in the first eight months, although the Indenture specified a minimum expenditure of £10,000 only in the first year.

(2) The population of the colony was already 270, including 32 settlers and their wives and families. The others were employees of Chaffey Brothers Limited.

Stuart Murray gave his impressions of Chaffey Brothers Limited in the following passage :—

The work done and general settlement are so far satisfactory. The Chaffeys have fully complied with the covenants of their agreement, and are evincing a disposition to interpret liberally their obligations toward the purchasers of Crown lands. The public on the other hand, are evidently appreciating the efforts made by the firm to establish a settlement, and are purchasing the blocks more readily than might at this early stage of the settlement have been expected.

By August 1888, £37,325 had been spent in irrigation works and improvements at Mildura, equal to the amount required by the Indenture to be expended within the first five years of the Chaffey occupation.

On August 31, 1888, a step which had momentous results for the future of the company, was taken. Cureton, whose conduct all through had been most unsatisfactory, was retired from the company, and was replaced by, of all persons, J. F. Levien, who had been one of the most bitter opponents of the Chaffey agreement.* Soon after Levien's return from London

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* Giving evidence before the Royal Commission of 1896, Levien said he opposed the granting of the concession when the bill was first introduced into Parliament because he thought the agreement was extremely loose as against the Crown. Now his opinion was that it was extremely tight as against the Chaffeys.

Deakin stated in evidence before the same body that when Levien told him he was joining the Chaffeys, it gave him a shock of extreme surprise. "I thought it only fair to warn him that I did not see how the Chaffey scheme could pay." Deakin proceeded : "He was extremely confident, and used the confident expression –' There's millions in it.' He said he had closely scrutinized the agreement, he had opposed it in the House because he thought it too favorable to the Chaffeys, and he still thought so, but as he had opposed it there was no harm in taking a share in it. After that Mr. Levien went to Ontario and Los Angeles and inquired about the Chaffeys. He inquired into their work of settlement, and when he came back afterwards and threw in his lot with them, I took that as an additional guarantee. Here was a man who had visited the settlements with the special object of inquiring into their *bona fides* and capacity, and he was so satisfied that he came back and joined them."

on the fruitless errand mentioned in an earlier chapter, he approached the Chaffeys, and offered to make available his resources to assist in financing Chaffey Brothers Limited. A man of large means, and undoubted standing in the business world of Melbourne, the Chaffeys thought Levien was just the man they were looking for. The immense pressure of work requiring their personal supervision at Mildura and Renmark made it a physical impossibility for them regularly to attend board meetings in Melbourne, and indeed to spend much time in the metropolis at all. They needed a resident director of high status and business capacity to take control of the Melbourne end of their business. Although Levien's conduct in Parliament might have warned them against this course, they took him into Chaffey Brothers Limited. He soon became Chairman of the Board,* and finally gathered complete control of the financial side of the business into his hands.

Levien's association with the company was unfortunate for the Chaffey Brothers personally, and the methods he adopted in its later years were held by the liquidators to be responsible for many of the misfortunes of the company. Speaking at Mildura during the Parliamentary visit of 1890, Levien explained how he, a severe critic of the Mildura Agreement, came to join the company. He was so impressed, he said, by a visit to the Chaffey colonies of Etiwanda and Ontario, after he had opposed the agreement in Parliament, that he became convinced the colonization system he saw in operation there must be successful in Victoria.

One of the most notable events of 1888 was the founding of the first newspaper, *The Cultivator*, by Nathaniel B. McKay, an elder brother of the late Hugh Victor McKay, inventor of the Sunshine harvester. The first number of *The Cultivator* appeared on Saturday, May 19, 1888. It was a weekly paper of eight pages, brightly written and amazingly well produced in the circumstances. It would put to shame many of the Victorian country journals of to-day. N. B. McKay, a most highly-esteemed early resident of Mildura, was an accomplished journalist, a practical fruitgrower, and an ardent admirer of

* When Levien became Chairman of Directors of Chaffey Brothers Limited, George Chaffey was Managing Director.

Chaffey methods. The young community was fortunate indeed in having such a man in its midst.*

The first number of *The Cultivator* contains a picture of George Chaffey above the caption, "Mr. George Chaffey, founder of the Settlement." "It is fitting," the accompanying article proceeds, "that our readers should be presented with a portrait of the man who has called this settlement into existence, and introduced a new industrial system into the Southern Hemisphere. . . . Mr. George Chaffey, with his wife and three children, his mother, sister and brother, are now settled on the banks of the Murray."†

Another article in the first issue of *The Cultivator*, headed "Mildura's Past," described the pastoral era of the district, and the coming of the Chaffeys. It declared that so favorably was the Chaffeys' project received by the Victorian public, that "Never was there such a general unanimity of opinion on any question."

THE LATE N. B. McKAY.

The leading article, headed *Ourselves*, stated :—

"None but those who have been brought face to face with the marvellous development of fruit and vine growing in California can grasp the magnificent possibilities of such an enterprise as Mildura. We have seen enough and have had sufficient experience to convince us that irrigation is the road to wealth, and we are here accordingly."

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* N. B. McKay later became associated with the business of his famous brother, Hugh Victor, and *The Cultivator* passed under the control of a nephew. Sam McKay, another brother of H. V. and N. B. McKay, opened a store at Mildura in the early days. He, too, joined H. V. McKay in the harvester business.

† By this time George had installed his wife and family in the old *Paringa* homestead on the Murray, opposite Renmark.

The article promised that *The Cultivator* would cultivate the friendship of all that can do good to Mildura and remorselessly scarify the enemies of the colony, a promise which was more than fulfilled. It declared that the journal was not being run by, nor in the interests of, Chaffey Brothers.

"We have bought land from the company, and are spending the whole of our capital at Mildura. . . . We believe in the Chaffey Brothers or we should not be here. . . . It is extremely improbable that the interests of the colonists and those of the company should ever be opposed, for the Chaffeys can only be successful by bringing about the prosperity of those who settle at Mildura. Our confident prediction is that the company the colonists and *The Cultivator* will float peacefully on the tide that leads to fortune."

The great advertising campaign launched by Chaffey Brothers, at the beginning of 1888, bore abundant fruit before the year was out. Active operations were not begun at Mildura until October 1887. Twelve months later some four hundred settlers had selected land, and more than five hundred men were working for "The Firm."

Mildura in its earliest stages contained the quaintest medley of types ever assembled in an Australian town. In 1888 every grade of society was represented, from cook's son to belted earl.* Mature men of culture and means rubbed shoulders with bright youths from the Australian cities, farmers of the old school worsted in a long fight against drought, younger sons of good English families, stolid yeomen from English counties, and retired Anglo-Indian officials. There were young Melbourne men, sons of genteel families, despairing of obtaining a genteel livelihood in the great metropolis soon to be smitten by an appalling financial disaster, scions of old squatting families eager to taste life in this strange new atmosphere, and spendthrifts down on their luck. Every Australian State sent its quota, but most of the settlers were from England, people of small means seeking and finding (their children did if they did not) a brighter and more wholesome life in this *Australia Felix*. For many of these the exclusion of

* Most notable of the early settlers was the Earl of Ranfurly, afterwards Governor-General of New Zealand. Lord Ranfurly took up land just below the homestead. This was irrigated by a separate pumping plant. He was one of the first on the scene, and proved a successful pioneer irrigator. Lord Ranfurly was a good friend of Mildura and of the Chaffeys in Australia and in England after his return.

liquor bars from the settlement proved the deciding factor. Gentle mothers found it possible after all to part with their sons, comforted by the thought that they would be preserved against the dangers of intemperance.

Many of those attracted by the able pen of James E. Matthew Vincent were, frankly, quite unsuited to the task of converting a wilderness into a garden. The climate was a constant reminder that they were in a new world, and they lacked the adaptability necessary to win success in their strange surroundings. The faintheartedness of many fearfully handicapped the young settlement. The true pioneering spirit cannot be possessed by all who throw in their lot with a new settlement, and it was not surprising that there should have been many individual failures, and much disillusionment, even where there was no complete failure ; but failures were really surprisingly few. The majority of the settlers possessed the necessary determination and adaptability, and, in the face of seemingly insuperable difficulties, laid the foundations of the great and productive centre of human activity that Mildura is to-day. The Chaffey colonies provided openings for hundreds of sons of people in moderate circumstances. Little capital was needed. Employment was provided at liberal rates by the company, and many of the settlers received back in wages a substantial proportion of their purchase money, while developing the settlement. Thus there was for the first few years at least a co-operative spirit, which, had it been preserved would have averted many of the troubles that came later.

The influx of population into Mildura, which began in 1888, lasted up till 1892, when internal dissensions brought the growth of the colony to a standstill. In 1890 there were over 3000 residents at Mildura. From 1896, when its fortunes touched bottom, the exodus would have equalled the influx of earlier years, but for the fortunate circumstance that only a small percentage possessed the means to escape from the settlement they thought to be doomed. This alone prevented the depopulation of Mildura. But the corner was turned even before the settlers realized it, and since those dark days, Mildura, which has had its ups-and-downs like every other community, has never experienced any serious reverses of fortune.

CHAPTER XIV

THE CUP AND THE LIP

ALFRED DEAKIN, accompanied by the Chief Engineer for Water Supply (Stuart Murray), paid his first official visit to Mildura in June 1889. Both expressed amazement at the progress made. Mildura had been in the possession of the Chaffeys less than two years, yet already £90,000 had been spent in permanent improvements. Tents and huts huddled together on the river bank, which had marked the town site in the first year, had been replaced by the beginnings of a handsome town laid out with that air of noble spaciousness which distinguishes Mildura from most Australian provincial cities. Deakin Avenue had been made, graded, and planted with its four parallel rows of trees over a distance of three and a half miles. The firm had under construction the brick boarding-house notable in Mildura history as "The Coffee Palace." The once desolate river bank was ringing with the laughter of children, and a school with accommodation for three hundred was being erected.

The country surrounding the town, which had thus miraculously sprung up, was assuming the appearance of a vast orchard. By August 1889, 6000 acres had been sold, 2200 acres ploughed, and 2000 acres planted with fodder crops, fruit trees and vines. Rapid progress was being made with the distribution system, and a silver grid of brimming channels met the astonished gaze of visitors. Nearly twenty-five miles of main channels had then been completed, in addition to thirty miles of subsidiary ditches and a further thirty miles of channelling under construction and surveyed. A vermin-proof fence 186 miles long had been constructed, and four miles of piped mains for the town supply had been laid down. The water works at Nicholl's Point were in position, and the great Chaffey pump for the Billabong station was being installed. By the end of 1889 nearly forty square miles of the settlement had a permanent water supply. The company had under-

taken planting and cultivating for non-resident investors, and, early in 1889, had fifty men with horses employed in clearing and planting land for absentee owners. It also imported nursery stocks for the convenience of the settlers, and before the end of the year, 20,000 citrus trees and 100,000 vines were available.

The earliest plantings were fifty per cent. vines (mostly Gordo Blanco, known to the trade as lexias), thirty per cent. stone and twenty per cent. citrus fruits. The vine throve exceedingly at Mildura, and the present-day proportion is nearly ninety per cent. of vines; about fifty per cent. of the cultivated area is now under sultanas. The Zante currant was successfully introduced in the early years, and is still largely cultivated. Visiting the settlement in 1890. *Telemachus* writes with astonishment at the phenomenal growth of vines and trees. On F. C. Hodge's farm he found that a vine planted in October 1889 had in December 1890 nine shoots averaging two feet six inches long, bearing twenty-four bunches of grapes promising twenty pounds of ripe fruit. Apricot, peach, prune and orange trees also excited his wondering admiration.

There was a marvellous atmosphere of optimism and confidence about Mildura in those days. Deakin and Stuart Murray found the attitude of the settlers in 1889 to be one of "contentment for the present, and hope for the future." "The people of Victoria may rest assured," wrote Stuart Murray, "that if effort on the part of its founders or hopeful work on that of the resident land owners can command ultimate success, that success is certain."

Although the apportionment of the Murray waters had been settled by an inter-Colonial conference between Victoria and New South Wales before the Chaffey agreement was presented to Parliament, Mildura's existence as an irrigation colony was jeopardized in 1889 by inter-State jealousies. By the Imperial Act of August 1850,* which separated Victoria from New South Wales, the boundary between the two States west of a specified point had been declared to be the course of the river Murray. The parent State, chagrined at the determination of its sturdy offspring to work out its own destiny,

* An Act for the Better Government of Her Majesty's Australian Colonies, 13 and 14 Vic., Cap. 59.

had, from the separation era, interpreted this to mean that the waters of the Murray from the point at which they became the dividing line between the two States to the South Australian border belonged wholly to it.

The question had been raised by successive New South Wales Governments, and just before the Chaffey regime, Alfred Deakin had secured what was hoped to be a permanent settlement at a conference which decided that one-third of the Murray waters within the area designated belonged to Victoria. But when the Chaffey scheme was actually in operation, New South Wales revived the water rights question, and South Australia, who had been ignored in the negotiations, might have caused serious complications by objecting to large diversions above her boundary, but for the fact that she herself was to have a Chaffey irrigation colony. Thus may good flow from evil, because, but for the hold-up in the Victorian Parliament there would have been no Renmark scheme and Victoria's legal right to divert water without the consent of South Australia was at least doubtful.

Consternation was caused in Victoria when New South Wales, which had never used more than an infinitesimal percentage of the Murray waters, seized on the opportunity of embarrassing Victoria by reviving this dog-in-the-manger policy. The utmost alarm was felt in Mildura, which saw its very existence threatened. Had the New South Wales claims been enforced, not a drop of water could have been legally diverted from the Murray without the permission of a hostile Government. The only alternative to purchase of a water right (assuming that the jealous parent State would have been willing on any terms to provide water for the creation of an irrigation colony on the Victorian side of the river), would have been the abandonment of the hopes and plans which centred around Mildura.

Mainly as a result of a change of Government at Sydney, Mildura weathered the first great crisis of its history. Sir Patrick Jennings was ousted from office by Sir Henry Parkes, and Parkes, though refusing to abandon his "The Murray is Ours" claim, proved more reasonable than his predecessor. In 1889, George Chaffey went to Sydney to consult Sir George Dibbs, who, early that year, had succeeded Parkes. Dibbs looked at the question in a statesmanlike manner, and the final

Deakin Avenue, Mildura. To-day.

upshot was that the large diversions of water required for Mildura were taken without further protest from New South Wales.*

A good story, characteristic of both men, is told of their first meeting. Dibbs was an impulsive, jovial individual, who could not resist similar qualities in others. When seeking an interview at the Premier's Office in Sydney, George Chaffey sent in his card by a messenger. Dibbs promptly returned it with an intimation that a Cabinet meeting on which the fate of the Government depended was impending. Chaffey wrote across the card, "Dammit, I've come five hundred miles to see you, and I won't keep you five minutes," and sent it in again. Dibbs returned it with the addition, "Dammit, come in!"†

George Chaffey was bearing the entire burden of leadership at this period. Suffering from a breakdown caused by grief at the death of his first wife, W. B. Chaffey was compelled to take a long rest, and was ordered abroad. He was absent from Australia for nearly two years. During that time, the elder brother successfully carried both Mildura and Renmark

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* "Looking to the jealousies and differences between Victoria and New South Wales, it is a pity that the Murray River where it forms, as in a great part of its course the boundary between these colonies, is by law all in the territory of New South Wales. . . . The Victorians hold that they put nine-tenths of the water into the Murray River, and are equitably entitled to take a good deal of water out again. . . . The Prime Minister of New South Wales has lately stated that the works of Chaffey Brothers in the Murray (Psyche Bend pumping station), are erected on the soil of New South Wales, and that the firm are trespassers, who must be turned out, and the New South Wales Government has prepared returns which show that something like a million and a half acres in Victoria will soon be irrigated from the Murray, with the effect, as they put it, of draining the river dry. On the other hand, at the very time of the preparation of this report, there was such a flood upon the Murray that the Government of Victoria was asked by Sir Henry Parkes, and acceded to the request, to send a special train with boats to the Murray to remove inhabitants to higher ground, and Echuca itself was under water."—*Problems of Greater Britain*, by the Right Hon. Sir Charles Dilke, Bart., Macmillan and Company, London and New York, 1890.

† It was this same Dibbs who figured in the most remarkable American press interview of the day. Dibbs was returning to Australia from London, via America, at a time when Chicago and New York were competing for the World's Fair, which was shortly afterward held in Chicago. Dibbs got to his hotel in New York on a very hot day, and was just getting some refreshment when the newspaper men came after him for interviews. The first question he was asked by a reporter, who broke into the room, was: "What do you think of Chicago's claim on the World's Fair?" to which he replied: "Oh, damn Chicago." He was amazed later on in the afternoon to see a headline across one of the evening papers, saying: "Prime Minister of New South Wales says Damn Chicago." He was known for a long time afterward as "Damn Chicago Dibbs," and the Sydney *Bulletin* was wont to refer to him as "D. C. Dibbs."

through the establishment stages. He and W. B. Chaffey were the only men living in Australia capable of organizing a private enterprise irrigation colony, and the whole weight of the administration relating to engineering, surveying and land problems was now on his shoulders.

In order to keep in touch with the multiple phases of the twin enterprises, it was necessary for him to visit Melbourne and Adelaide at frequent intervals. There were no motor cars and few railways in those days, and transportation was extremely tedious and fatiguing. George Chaffey was kept revolving around a Mildura-Renmark-Adelaide-Melbourne orbit of some 1200 miles. He became a stranger to his own family. Were not his store of physical and mental energy all but inexhaustible, the task set him would have proved impossible of accomplishment. Recalling the primitive conditions of outback life in those days, the isolation of Mildura and Renmark—both were more than one hundred miles from a railway—and the discomforts attached to covering great distances in the fierce heat of the Murray country, the effort put forth by George Chaffey must seem miraculous to the Australian of to-day. The additional strain imposed by his brother's absence would have killed most men, but he revelled in the joy of achievement, of seeing the settlements break into blossom before his eyes.

The next visit to Mildura made by Deakin and Stuart Murray was in September 1890. Each, once more, had occasion to express amazement at "the phenomenal development" of the settlement. Certainly wonderful progress had been made. The total expenditure was set down by Stuart Murray at £183,835; thus the Chaffeys had spent in three years more than three times the amount required to be laid out in five years. This was the feature of the operations in which Stuart Murray was most interested as Chief Engineer for Water Supply for, as he wrote after his visit in 1890, the control exercised by his department over the Mildura Irrigation colony "*is limited to its being satisfied that the condition specified in the agreement between the Government and the Messrs. Chaffey relating to the amount of expenditure upon improvements is fully complied with.*"

Although certificates showing an expenditure of nearly £185,000 had been given, Crown grants had been issued for

about 16,000 acres only. The population of the "worn out sheep run" had risen in 1890 to 3000. There were 950 resident settlers and their families, three hundred men employed by the Chaffey Brothers, and one hundred contractors and their employees. Upwards of 15,000 acres had been sold, and 6500 acres had been cleared. More than 4500 acres were under cultivation, including about 900 acres planted with vines and fruit trees. The most extensive plantings were of raisin vines ; next came oranges and lemons, apricots, peaches and figs. Not more than fifty acres were planted with wine grapes. The first-fruits of irrigation in the Murray Valley were displayed at the first Mildura show held in March. Apples, pears, sultanas, currants, lexias, tomatoes and vegetables were proudly exhibited as an earnest of the bounteous crops and of the prosperity to come.

The Zante, which has since been such a great success at Mildura, did not seem likely to do well in the early days. It was shy and sensitive, and easily injured by the hot blasts of mid summer. In 1894, 200 acres were planted with the Zante, but there was a falling off until about 1901. Within the next few years the area under Zante was nearly doubled. Cincturing had hastened the crop-bearing age and insured the success of the fruit. The sultana, Mildura's greatest crop, was not encouraged at first. In 1894 there were only sixty-six acres planted with this vine, while the Gordo Blanco occupied 2587 acres. The sultana was soon found to be adapted to Mildura conditions, and those who started with it reaped a rich harvest. In 1899 there were 500 acres under this crop, and by 1906 the sultana had won pride of place among Mildura products. In 1903 Mildura products from 5000 acres were worth £250,000.*

Progress in the town in 1890 had kept pace with the agricultural development, and there were now fifty-two business establishments. Already, the settlers were enjoying the privilege of local government. Mildura had been separated

* In 1926-7 above 13,000 acres were under cultivation, yielding 37,500 tons of dried fruits, in addition to citrus and stone fruits. The production included 26,400 tons of sultanas, 6900 tons of currants and 4200 tons of lexias. The principal areas planted were : Sultanas 6056 acres, currants 2610 acres, Gordos 1489 acres, wine grapes 259 acres, oranges 536 acres, deciduous 410 acres. During the twelve months ended June 30, 1927, 1,511,490,000 cubic feet of water, equal to 9,446,812,500 gallons were diverted through 400 miles of channels and subsidiaries. In 1927 more than 14,000 people formed the Mildura community.

from Swan Hill, which it was now outshining, and created a shire with a rateable value of £30,000 on April 2, 1890—less than three years after the first onslaught upon the Mallee wilderness. The whole of Block "A" (25,000 acres) had been surveyed and divided into lots, and 12,000 acres in Block "C" (200,000 acres) were being surveyed and subdivided. Most important of all, Deakin and Stuart Murray found that the suitability of climate and soil for fruit growing under irrigated culture had been demonstrated by the handsome yields of beautiful Gordo Blanco grapes produced from a small vineyard planted only twenty-two months. These had been converted into splendid sun-dried table raisins. Even with the powerful steam clearing plants constantly at work it had been found impossible to keep pace with the demand for land.

George Graham had succeeded Deakin as Minister for Water Supply towards the end of the year. He visited Mildura in December 1890, accompanied by Stuart Murray, whose notes showed there were then not less than 6000 acres of planted land. Raisin vines (many less than two years old), oranges, lemons, apricots, peaches and figs were all doing splendidly, and any doubt as to suitability of soil and climate for horticulture had been dissipated for ever.

Stuart Murray then raised two important questions, each of which, a cloud no bigger than a man's hand, was beginning to show on the horizon. The first of these was the question of marketing. Stuart Murray pointed out that while the Australian market for Mildura products might suffice for some years—Australian fruit imports were at that period not less than £700,000 a year — overseas markets must soon be found, and before a generation would pass away Mildura settlers would face world competition. There was comfort in the thought that Britain's fruit imports were then £8,000,000 a year, but in those days there was no thought of Imperial preference, and Stuart Murray's warning was not heeded in time. Much water flowed down the Murray before the marketing problem was attacked in a scientific way by W. B. Chaffey and those associated with him, who founded the Australian Dried Fruits Association.

The other question raised by Murray was of more immediate concern. Many of the Irrigation Trusts created under the State Irrigation Acts, had repudiated payment of water rates,

leaving the State to make good arrears amounting to more than £1,000,000. Constituents of the Irrigation Trusts were expected to provide interest on the capital invested in water works, in addition to meeting supervision and maintenance charges, and repaying the principal. But the Mildura settlers were in a vastly better position. They had no interest on the cost of works and channelling to pay—these were the property of the settlers themselves, and there was no principal to be wiped off. All purchasers of Mildura land became *ipso facto* shareholders in the Mildura Irrigation Company, with a *pro rata* right of property in the works, and a right to a supply of water therefrom. They had corresponding obligations in respect of water rates to meet distribution, supervision and maintenance costs. These rights and obligations ran with the titles to the land, so that purchasers in acquiring water rights undertook obligations to pay rates levied by the Mildura Irrigation Company. This Company had just levied its first rate of six shillings an acre on all purchased land, whether irrigated or not. The quantity of water actually used on planted lands had been twelve inches a year, but considerably more than half the lands sold were not yet planted and using water; hence the rate would amount to more than one shilling an inch per acre of water actually supplied. "Such a rate . . . . it is confidently expected will be paid without reluctance and will not prove oppressive," Stuart Murray wrote. "Repudiation of the obligation to pay is out of the question. . . . Repudiation by the settlers would simply render the cultivation of their own properties impossible. Whatever, therefore, may be the financial troubles of Mildura, repudiation of the obligation to pay water rates is not likely to be among them." Unfortunately, Stuart Murray's words were not prophetic.

In May 1890, at the invitation of Chaffey Brothers Limited, and of the Mildura Shire, a large party of members of Parliament paid an official visit to Mildura. Conspicuous among these was that able politician, J. B. Patterson, now Commissioner for Trade and Customs in the Gillies Ministry. Although Patterson played a mischievous part in delaying the Chaffey agreement, he had now become an enthusiastic admirer of the Chaffey settlement. Speaking at a banquet presided over by Henry Williams, Patterson, while defending his former

opposition to the scheme on the ground that the agreement was lacking in precision, said Mildura had proved materially beneficial to all who joined the colony, and that was the one basis on which success could be built. One of the most impressive features of the Chaffey scheme was that it had introduced to Victoria an attractive class of citizen, industrious, self-reliant and provided with some capital. The settlers were solving the problem which the politicians were afraid to tackle, he said. They were opening up a section of the State which had always been desolate. During the last twelve months Mildura had exported from a former wilderness, goods valued at £19,000.

Lord Ranfurly proposed the toast of Chaffey Brothers, and George Chaffey responded. "His reception by the large audience (over 250 were present) was most enthusiastic," *The Argus* reports, "an evidence that most cordial relations exist between the company and the settlers. This would not be the case if the obligations entered into by the company were not generously as well as honestly fulfilled. Going among the settlers, one finds abundant evidence that this is the case, and it is a most hopeful sign for the future of the company. . . If the place does not succeed, it will not be owing to any want of energy, enthusiasm or intelligence on the part of the settlers."*

Commenting on Stuart Murray's report, *The Argus* of September 27, 1890, stated editorially :—

" The report of the Chief Engineer of Water Supply on the Mildura irrigation colony gives a very satisfactory record of progress. The politicians who condemned the agreement in such exceedingly bitter terms must now be prepared to acknowledge that their vaticinations of evil were without reasonable cause. . . . The enthusiasm generated in the Chief Secretary (Deakin) by his inspection of the results of irrigation in the United States, is in the way of being justified by local experience. . . . The work done at Mildura shows that the Chaffeys have been better than their word. . . . . Where only four years ago there was scarcely a soul beyond a solitary shepherd, there is now a thriving settlement, with a population of over 3000, rapidly increasing, of which nearly 1000 count as resident agricultural settlers. . . . There is no exaggeration in the hope that before the end of the decade Mildura will become one of the most flourishing districts in the State."

* "In conversing with the settlers, one finds that they, at least, have no misgivings. . . . So far they say the place has surpassed their most sanguine expectations, and they do not fear it will disappoint them in the future."—*The Argus*, May 20, 1890.

The foundation stone of the Agricultural College was laid by the Governor, the Earl of Hopetoun, in April 1891.* At the banquet which followed the laying of the stone, George Chaffey, who presided, in toasting the health of the Governor, expressed the hope that in future years he would return to Australia as the first Governor-General of a united and federated Australia. That thought proved prophetic ; within a decade the Earl of Hopetoun, now become the Marquis of Linlithgow, had the distinction of becoming the first Governor-General of the Commonwealth of Australia. Lord Hopetoun, in returning thanks for the compliment, said it was difficult to believe that the smiling land he saw around him was the same that three years ago had been regarded as absolutely worthless. Soil, water and sunshine had long awaited the master mind to bring about the happy results of the day. . . . The best proof of success was that those who were most sceptical now admitted their mistake.

The Minister for Agriculture (A. McLean) said not only Victoria, but all Australia was indebted to the Chaffeys for the marvellous progress that had been made.

The report of the Water Supply Department for 1891 showed that to June 30 of that year, £275,000 had been spent by the company, in addition to £100,000 expended by the settlers in improving their holdings. The population was still increasing, and the horticultural blocks were dotted with comfortable homes. More than 20,000 acres of the wilderness had been cleared, and of the 6500 acres cultivated 6000 acres were under fruit and vines. More than 300 miles of channelling had been completed, and the Psyche Bend station was now at work. The company's pay-sheet showed a wages expenditure of £7000 a month. The customs receipts at Mildura for the first nine months of the year were £3226.

The prohibition experiment at Mildura was only partially successful. It proved too drastic for Australian sentiment, although public opinion in Victoria at the time was strongly pro-temperance. But there were too many choice spirits at Mildura, who, finding the restrictions irksome, overcame them

* Owing to difficulties, mainly caused by the too-rapid expansion of the colony, with which the company began to be confronted soon after, the college was never completed under the Chaffey regime. The Chaffey College was to have been constructed in Deakin Avenue, about two miles from the river.

by wholesale importations of liquor by river. The bacchanalian revels which followed the arrival of these forerunners of the bootlegging fleets of to-day could not have been eclipsed in any Victorian town where the retail sale of liquor was permitted. In dry seasons navigation was suspended for six months at a time, and the bloods of Mildura then had to undergo involuntary periods of abstinence—liquor stocks were never equal to tiding them over such a prolonged drought. On these occasions the re-opening of the river, marked by the arrival of a steamer, would be celebrated with prolonged hilarity.*

Local public opinion having made it impossible to enforce complete prohibition at Mildura, the conviction gradually gained ground that the sale of liquor with restrictions would be more seemly than the disorderly, bibulous parties which followed the landing of supplies. In consequence, the Mildura clubs, which, though drinking centres, were a great improvement on the old irregular conditions, came into existence.

The first was the Mildura Club, established in 1891. Its original home was at the Coffee Palace, but it later moved into the old *Cultivator* building. Then the Settlers' Club, formed by a section dissatisfied with the Mildura Club management, and desiring more latitude, came into being. Next followed the Working Men's Club. Each of these had bars, but the drinking was not brought unduly under public notice, and was kept within the limits of decent order.†

Notable among the subsidiary companies founded by Chaffey Brothers was the River Murray Navigation Company, under which passenger and goods traffic on the river reached its

* It was at a time like this when a regular contributor to the Poets' Corner of *The Cultivator* chronicled the breaking of the drought by the arrival at dusk of a steamer laden with cases of his favorite brandy. "We saw Three Stars in the evening sky, and we knew Mildura was saved," he ended triumphantly. The story of the inebriated racecourse official will always be a Mildura classic. Excessive conviviality following the arrival of a belated steamer seemed to have made it impossible for him to carry out the duties of judging the finishes, but he persisted in exercising his functions. In the first race a white horse seemed to the general public to have made a dead heat with a bay. The judge's verdict was: "The shkewbald, by a short head!"

† N. B. McKay, the editor of *The Cultivator*, himself a convivial soul, was extremely jealous of Mildura's reputation. On one occasion a visiting journalist, who had attended a bacchanalian celebration, violated hospitality by writing a lurid account of drunkenness at Mildura—the alleged temperance settlement. This stung McKay to retaliation, and he concluded a scorching rebuke to the visitor with the words, "We have now for the first time in our journalistic career understood what Gray meant when he wrote of waking to ecstacy the living liar!"

highest development. The Chaffeys bought the old *Gem*,* the *Ellen* (which had accommodation for forty passengers), and the trim little *Ruby*. These are historic ships, because George Chaffey made them the first on any Australian river to be fitted with electric light. The bright searchlight fitted to the bows of each ship, searching out every snag and shoal, extinguished the danger of river travelling by night. For long these electric beams flashing across the river flats were a source of wonderment to distant settlers. George Chaffey imported the frame and engine of a boat specially adapted to the Murray conditions. This was *The Pearl*, a stern paddle steamer with three tiers of saloon decks. Notwithstanding her size—she was the largest boat on the river—she was always used to illustrate the theory of George Chaffey's admirers that he could design a ship which would float in a good heavy dew. Her draught was but three feet six inches.

Outside interest in Mildura was maintained by a series of weekly excursions under the auspices of Thomas Cook and Sons, from Melbourne via the newly opened railway to Swan Hill, and thence by one of the Chaffey boats to Mildura and Renmark.

The progress made up to the end of 1892, Mildura's peak year, under the Chaffey regime, can best be conveyed by figures. The receipts from land sales since the company's formation had been :—

1889	£103,266	1891	£114,563
1890	61,640	1892	100,012

By the end of 1892 Chaffey Brothers Limited had spent £312,786, of which £176,668 was certified to by Stuart Murray as having been expended on irrigation works and substantial improvements ; the balance represented cost of management and incidental expenses. The company had acquired a title to 50,196 acres, of which 15,831 acres had been sold to settlers, and 10,000 acres in Blocks "A" and "C" had been planted. The population of the settlement exceeded 3000, including 500 school children. Writing of Mildura at this period, Alfred Deakin, in *Irrigation in Australia*, states :—

" By far the boldest enterprises in connection with horticulture re to be found at the colonies of Mildura and Renmark, where the

* In the seventies *The Gem* ran between Wentworth and Mildura. She is still at work on the Mildura-Morgan run.

Messrs. Chaffey Brothers, Canadians, who became experts in the management of irrigation colonies of Southern California, have obtained large grants of land and water rights from the Governments of Victoria and South Australia. The progress made on these blocks during the last three or four years is amazing. Mildura alone has upwards of 3000 residents, where till 1887 there was only a station homestead and a waste of Mallee. There are 30,000 acres commanded by more than 250 miles of channels. There are 16,000 acres sold, of which 7000 acres are cleared, and most of them cultivated. Already several thousand acres are covered by young orchards, which are making marvellous growth."

This, then, was the position by the end of 1892. Chaffey genius had made this once-shunned region a centre of human activity. Barely five years had sufficed for the establishment of an irrigation colony which was then, and still remains, an object lesson for Australia. But the period of glowing optimism and confidence was swiftly passing away, to be succeeded by years of senseless internal dissension, which wrecked the fortunes of Chaffey Brothers, and all but destroyed Mildura itself. By the end of 1892 Mildura had outgrown its strength, and reaction was inevitable. The clouds which Stuart Murray had seen on the horizon a couple of years back had become black and formidable, and few except the Chaffeys saw that the depression was anything but a passing phase which every great pioneering enterprise must suffer.

Local problems were intensified in 1893 by a financial crisis unprecedented in the history of Australia. Since 1890 Victoria had been suffering from the acute depression which followed the bursting of the "Boom," and the credit even of this El Dorado of the South had been strained to breaking point. The worst was still to come. Disaster followed disaster.

"By the beginning of 1891" (writes Henry Gyles Turner*) "a financial spectre began to haunt a large section of the community; to fill the days of the land speculator and share jobber with a depressing dread of the insolvent court; to diminish the expenditure everywhere, and hence to so attenuate the profits of the retail trader that he in turn had to succumb. The unwonted sight of scores of shops to let in the best business streets of the metropolis must have convinced the most thoughtless that there was something serious in the position. . . . The

* *A History of the Colony of Victoria* (Longmans, Green and Company, London, 1904.)

seeds of the so-called 'Boom' were sown in the really prosperous years of 1884-5. It had grown with amazing rapidity under favorable financial conditions, and by 1888 had really got beyond the control of its originators."

In 1885 there were sixty-two "permanent" building societies in Melbourne. This number was reduced to fifty in 1891, the year in which the financial stress first assumed acute form. By the end of 1893, the year of the great banking disaster, all but two or three had failed. Of the twenty-eight financial and mortgage agencies listed on the Stock Exchange in 1888, only two survived the crash without suspension, and twenty found "dishonorable graves" under the auspices or more or less hostile liquidators, as Turner puts it. "An additional twenty-two land and investment companies, many of which had enticed considerable deposits from the public, all passed into the limbo of liquidation, leaving behind them little but bitter memories of wrecked hopes and broken fortunes," he records.

Collapse of private credit was an inevitable feature of these failures. Thousands passed through the insolvency courts, and unprecedented personal distress was created. The gamblers, whose money and whose losses existed mainly on paper, escaped lightly, but the thrifty, whose savings were swallowed up in the crash, were the real sufferers. The crashes began in 1891, making this the most gloomy year in Victorian history, but worse was to come. By the middle of 1892 there were twenty-one financial companies of one kind or another in suspension, tying up deposits aggregating £11,000,000, and involving the stricken shareholders in a liability of £4,600,000 for uncalled capital. From this time, as the authority quoted states, calls began to be an oppressive, often a ruinous, item in the finances of hundreds of households. In 1892, 610 persons either passed through the insolvency courts or effected legal compositions, their declared liabilities exceeding £7,800,000.

The great banking disaster, the scars of which have not yet disappeared, began in 1893. "The year opened to an attitude of strained expectancy," Turner states. In the first month, the Federal Bank of Australia, the youngest of the associated banks, closed its doors. The Commercial Bank of Australia with over 100 branches and with 35,000 customers, was the next to suspend payment, but after reconstruction it was able

to resume business. By the middle of May, twelve banks had suspended, but all except one survived reconstruction.*

The action of the Victorian Government in proclaiming a *moratorium* from May 1 to May 5, during the height of the panic, is held by Turner to have accentuated the crisis. Three banks declined to avail themselves of this panic measure, and they all survived without suspension. On the contrary, those which took advantage of the *moratorium*, almost without exception, closed their doors.

In the light of these facts it seems little short of miraculous that Chaffey Brothers Limited should have survived. It was not till long after the acute stage of the crisis had passed that the firm went into liquidation, and that arose mainly from internal troubles only indirectly connected with the financial depression, general as it was.

Victoria's recovery from the disaster was slow and painful. It lost to New South Wales the prestige it had held for forty years as the foremost Australian State. From 1895 to 1900 this young State, which needed population so badly, lost 75,000 adults by emigration. The savings of thousands were swept away; prices of primary products fell, and money for developmental purposes was almost unobtainable. There was not a community in the State which did not suffer from the contraction of the money market and from the long period of stagnation which supervened upon the collapse of credit.

Thus from 1891 circumstances combined to add to the difficulties of Mildura and of the Chaffeys. The financial crash dried up the sources of the stream of capital, essential for the development of Mildura. It reduced the purchasing power of all classes, in effect all but destroying the local market for Mildura products—in those days fruit was regarded as a luxury and not as a necessity.

* "Victoria was the storm centre of the cataclysm of 1893," states *The Australian Encyclopaedia* (Angus and Robertson, Sydney, 1926). The suspensions of building societies and financing (as distinct from financial) institutions had begun two years earlier, but when the Federal Bank of Australia closed its doors, a panic began which reached its height during the five days' *moratorium* proclaimed by the Victorian Government, from May 1 to May 5. By May 17, twelve banks having 965 branches in all parts of Australia, and an aggregate liability of more than £100,000,000, stopped payment. Then, in June and July the great pastoral and wool companies began to suspend. Before the acute period passed, 23 banks had failed since the bursting of the Boom.

But the most disastrous circumstance of all was of purely local origin. The war waged on the Chaffeys for four years by a section of the settlers arose in the first place from the traditional reluctance of water users to pay water rates. The irrigation trust constituents had failed to pay interest on loans obtained from the Government, but the Mildura settlers would not—in many cases could not—pay to themselves the rates necessary to operate and maintain their own water works. Those who could not pay adopted a hostile attitude towards the Mildura Irrigation Company, their own organization, and threw in their lot with those who would not meet their obligations. Both sections turned on the Chaffeys and rent them. A few malignant spirits—men of this type promoting private grudges are found in every community—busied themselves in stirring up disaffection. Natural uneasiness regarding the future when the credit of the fabulously wealthy State of Victoria was rocking, made many listen to the counsels of envy and hate. The result was that a large section of the settlers joined in a campaign designed to expel the Chaffeys. After four years of fighting, malice triumphed over George Chaffey's lion courage, but it was a barren victory.

The disaffected element at Mildura destroyed public confidence in the whole scheme, although in 1892 it was already successfully and permanently established. Mildura was not yet producing enough to provide for its current expenses, and when the vital stream of capital ceased to flow into the colony as a result of the abrupt stoppage of the sale of land in 1893, complete stagnation resulted. The income of the Chaffeys, who were spending in the colony almost all they obtained from the settlers, was cut off. The immediate effect was hardship for all, the final result utter ruin for the promoters. Money ceased to circulate, and Mildura became a community of people living by taking in each other's washing. Years of severe hardship for Mildura followed the elimination of Chaffey Brothers Limited from the enterprise. It proved a losing fight for the settlers as well as for the Chaffeys.

How fraternity and confidence at Mildura came to be replaced by fratricidal strife will be related in the next chapter.

CHAPTER XV

THE BIRTH OF DISAFFECTION

LOVE of achievement has betrayed many a master mind into undertaking more than it is humanly possible for one man to accomplish. George Chaffey found at this period that his attention was being directed from the greater task by a number of lesser enterprises into which he had permitted himself to be drawn. Undoubtedly Mildura suffered from being deprived at too frequent intervals of the sure touch and magnetic personality of its founder.

Mildura was great enough, and presented complex problems enough, to have used up even his apparently inexhaustible store of energy. But circumstances already related had led him and his brother to undertake another reclamation scheme of equal magnitude, if not of equal promise, at Renmark. The development of Mildura was a colossal task without the 250,000 acres scheme in South Australia. It was a weakness of George Chaffey to be always on the watch for some new wilderness to conquer. No sooner were Mildura and Renmark established than he became interested in other projects. In 1889 he was in correspondence with the Queensland Government, on the question of irrigation work in the great tropical North of Australia. This proposal did not pass beyond the correspondence stage.

About this time he formed an association with the Rev. E. C. De Garis, a former Methodist Minister, who had devoted himself to the promotion of irrigation in Australia. De Garis was a man of the L. M. Holt type, but, although superficially more brilliant, his was a less constructive brain. A genuine irrigation enthusiast, he was a persuasive talker and an incisive and convincing writer, who did much to win popular support for the Deakin system of State water works. De Garis was strongly attracted by the Chaffey schemes. Engaging the attention of George Chaffey by his enthusiasm and undoubted ability, De Garis aroused his interest in a typical "boom"

scheme, which proved a disastrous failure, and indirectly reacted unfavorably on the future of Mildura. This was the irrigation project undertaken by the Werribee* Irrigation and Investment Company, of which George Chaffey became chairman of directors and De Garis managing director. It was to be a market garden irrigation colony, supplying Melbourne with vegetables, flowers and herbs. Land to be irrigated by the Werribee River was offered at boom prices, ranging up to £200 an acre. The project, a generation ahead of its time, was doomed at birth by the collapse of the great land boom in 1890-91. George Chaffey undoubtedly committed a grave error of judgment in having anything to do with this scheme. He was the only director who fulfilled the undertaking to build a house at Werribee.† George Chaffey brought his wife and family from Paringa to Werribee in 1891, and resided there until August 1892, when he went to Mildura to live, and occupied *Hermosa* in 11th Street, his last residence in Australia. The Werribee failure was doubly unfortunate in damaging the Chaffey reputation and, worse still, in temporarily distracting George Chaffey's interest from Mildura at a most critical period. When he went to Mildura to reside in 1892,‡ disaffection which had been smouldering during his absence had gained a firm hold, soon to burst into fierce flame.

In 1891 a scheme to irrigate lands at Mulgoa, near Penrith, about thirty-four miles from Sydney, was brought under George Chaffey's notice and, associated with his brother, De Garis, Henry Gorman, R. W. Hardie, A. W. Stephen and George E. Browne, he fathered a proposal to divert water from the Nepean River to irrigate Mulgoa. The scheme was stillborn, but it was unfortunate in that it wasted much of George Chaffey's valuable time, which could have been spent on Mildura problems. He also went into partnership with J. G.

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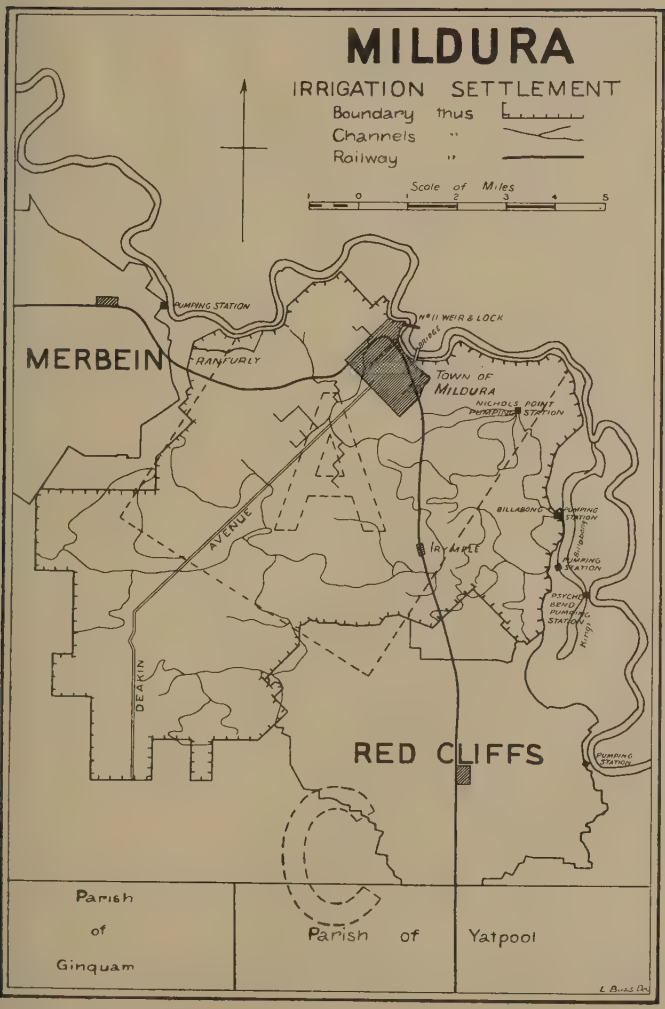
* Werribee lies about 20 miles from Melbourne on the road to Geelong.

† Each director had undertaken to spend a large sum in building and cultivation at the colony.

Notwithstanding this initial failure, the Victorian Government has since chosen this locality for a large irrigation settlement which has proved remarkably successful. It is also the site of the National Irrigation Farm and Research Station.

‡ *The Cultivator* announced, on August 6, 1892, that George Chaffey, recognizing that the affairs of Renmark and Mildura colonies were making increasing demands on his personal attention, had given up his Melbourne residence, and made his home at Mildura.


MILDURA
IRRIGATION SETTLEMENT
Boundary thus
Channels "
Railway "
Scale of Miles
0 1 2 3 4 5
PUMPING STATION
MILL WEIR & LOCK
MERBEIN
RANFURLY
TOWN OF MILDURA
NICHOLS POINT PUMPING STATION
AVENUE
BILLABONG
PUMPING STATION
IRYMPLE
PUMPING STATION
PSYCHO BEND PUMPING STATION
MURRAY
DEAKIN
RED CLIFFS
PUMPING STATION
Parish of Ginquam
Parish of Yatpool

Starr, C.E., and formed the firm of Chaffey, Starr and Company, consulting engineers, of Swanston Street, Melbourne.

With so much time spent in chasing what proved to be will-of-the-wisps, it is not surprising that the great enterprises on the Murray suffered. If Mildura had felt the influence of its founder when the first troubles began to show above the horizon, the subsequent division of the settlement into factions might have been averted.*

Too rapid expansion, caused by the great influx of land and home seekers in the earliest years, undoubtedly added to Mildura's troubles. By August 1893, the Chaffeys had spent £350,000, ten times the minimum expenditure required by the indenture for the first five years. George Chaffey, looking back over the events of thirty years ago, puts it thus :—

" Our first financial troubles were due to the fact that we spent money much in advance of our obligations under the indenture, and the settlers could not, or would not, meet their payments to us. In the early days everything went well so long as we spent money. When we came to collect money due to us it was a different matter."

The position, from the settlers' point of view, was that the money spent by the Chaffeys was largely provided by them. Few returns were coming in when the troubles began in 1892 and, owing to inexperience and, in quite a number of cases, to inferior nursery stocks, the quality of the grapes and oranges was poor at first.† With their capital exhausted and no money

* Giving evidence before the Mildura Royal Commission in 1896, Alfred Deakin said it was obvious that in undertaking Renmark in addition to Mildura and in negotiating with New South Wales and Queensland, the Chaffeys had bitten off more than they could chew. No pair of brains, however clever, could hope to carry on all these enterprises simultaneously. At the same time they were considering the construction of a railway to Mildura. If the Chaffeys had not undertaken other schemes he thought Mildura would have been a marked success.

It is but fair to remind the reader that the Renmark scheme was undertaken by accident, as it were. The Chaffeys became committed to it when there seemed little prospect of securing Mildura.

In his evidence before the Royal Commission, George Chaffey admitted he had erred in being drawn off into other enterprises during the " Boom." He said he was perfectly sure that if he had been at Mildura during the inception of the agitation, it would have been nipped in the bud. " Why did you permit yourself to be drawn into other enterprises ? " he was asked. " I was sought after," he replied. " If I had not been sought after, I could not have been drawn off " (from Mildura).

† Complaints that nursery stocks were not true to name were frequently heard in the early days of Mildura. This was due to the dishonesty of nurserymen, who flooded the settlement with inferior and unsuitable stocks. The

coming in, it was impossible for many to meet instalments due on their land and to pay the rates levied by the Mildura Irrigation Company.

On the other hand, the undoubted facts are, that much of the money provided by the settlers which came to the Chaffeys was returned to the settlement in wages, and most of it was spent at Mildura. The settlers, by their own folly in following the counsels of a handful of agitators, destroyed public confidence in the scheme, and thus stopped the flow of capital by investment and land sales into the colony, vitally necessary until it was producing enough to enable the settlers to pay their way.

Another factor which weakened the popularity of the Chaffeys, was the appointment of a manager brought by W. B. Chaffey from California in 1891. He proved tactless, overbearing and despotic, and his unpopularity had an unfavorable effect on the Chaffey interests.* Paterson had quarrelled with them before this, and by his dismissal had been converted into a bitter enemy biding his time.

Monday, August 29, 1892, was a black day for Mildura. On that date arrived a bird of ill omen in the person of B. C. Harriman, ex-Secretary of the Crown Law Department, with the sensational announcement that the settlers were legally entitled to free water (*i.e.*, water provided gratis in perpetuity by the Chaffeys and their successors). Harriman assured the startled community that he had supervised the drawing up of the indenture,† and it undoubtedly meant that

* Deakin stated before the Royal Commission that the complaints regarding the Chaffeys, about which there seemed no doubt they were in fault, related chiefly to their manner of administering the settlement. They had adopted what might be termed an American method, of treating it as a purely business enterprise, and their employees even worse than themselves. "I heard far more complaints about their employees than about the Chaffeys," he said.

† "Mr. Harriman was never consulted in any way as to the drawing of the agreement (the original agreement signed by George Chaffey and Alfred Deakin on October 21, 1886), or any part of it. His memory has betrayed him into thinking that what was merely the legal expansion of an already existing agreement was the agreement itself, and that he had some hand in drawing it up, whereas I venture to say he never saw the agreement until it was laid before Parliament."—Alfred Deakin giving evidence before the Mildura Royal Commission of 1896.

Chaffeys suffered in this respect like the other settlers. W. F. Salmon told the Royal Commission that the nurserymen of Australia had a lot to answer for in supplying worthless stock to the people of Mildura.

no water rate should be charged. This view, expressed with all possible emphasis by a person who had been permanent head of the Crown Law Department for twenty years, naturally made an impression on the settlers, especially on the more ignorant—the saner spirits recognized the obvious absurdity of the contention—and steeled their determination not to pay rates.

Harriman's contention was ridiculed not only by the Chaffeys but by Stuart Murray, the expert head of the Water Supply Department, and by Alfred Deakin who, apart from being a barrister of high standing, knew more about irrigation legislation than any man in the British Empire. A man of strong prejudices, Harriman doggedly stuck to his point for four years, and finally had the audacity to maintain it before the Royal Commission of 1896.* He was the man who described James E. Matthew Vincent's Red Book as a "gilt and scarlet bundle of misrepresentations."

There was a certain amount of force in the complaints, which began to be heard early in 1892, that some channels were defective. These complaints were based on an apparent loss of water through leakage. The settlers naturally felt aggrieved at having to pay for water which, they were led to believe, did not reach the irrigating ditches, and investigation at a period a little later than that which we are now discussing, proved they had some cause for concern, though the fault lay not with the promoters but with the physical conditions at Mildura. As soon as the complaints became general, George Chaffey directed that tests be made. These convinced him that one-fifth of the water was lost by percolation. The malcontents claimed that the loss was one-third.†

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* Deakin had actually disposed of this point before Harriman arrived at Mildura. After the memorable address he delivered at the settlement on Tuesday afternoon, June 28, 1892, H. P. Graham said many of the settlers thought they should never have had to pay for the water at all. Personally, he did not think this, but he would like an expression of opinion. Deakin said the intention of the Government was that a certain water right should go along with the land, but how those who had the right would get the water to the land was a question of arrangement. It was impossible to suppose that the price charged for the land should include the cost of water, seeing that the value of one cubic foot of water per second in perpetuity was estimated at about £2000.

† Experiments made in 1893 and 1894 did not confirm the estimated losses. Elaborate investigation of the deliveries from the 70-ft. channel throughout some 14 miles of its length showed a loss of ten per cent. only. The losses on the higher channels were greater, but the total loss in distribution was considerably under 20 per cent.

Vainly hoping to restore peace, he offered on behalf of the firm to bear one-third of the cost of pumping to tide over the critical period, thus relieving the settlers of any direct loss from leakage. While declining to admit legal liability for damage to land or crops caused by seepage, he offered to consider separately, on its merits, each claim for compensation. The Mildura Irrigation Company, by this time controlled by the anti-Chaffey faction, composed entirely of laymen, declined to accept George Chaffey's offer, and a deadlock was thus created. At a later period George Chaffey again tried to effect a compromise by offering to pay rates on unsold land commanded by channels used by the Mildura Irrigation Company, excepting 1500 acres to be regarded as the stock-in-trade of the firm, flats liable to flooding and useless for irrigation, and lands set apart as endowment for the Agricultural College. The proposal was nullified by the obstinacy of the malcontents.

Later still, George Chaffey offered to enter into a contract to take over the work and all responsibilities connected therewith, to divert and distribute the water, to improve, manage and maintain the works, to line the channels where necessary, to deal with the question of leakage and with all matters of dispute, except legal costs, in consideration of a payment of twenty shillings an acre a year on all alienated lands ; should a court of law decide that the Chaffeys were responsible for lining the channels, the rate to be reduced to fifteen shillings. This offer was rejected by the irreconcilables. They argued that if the settlers declined to recognize the Chaffeys there was a possibility of resumption by the Government. The idea was that if resumption took place, the Government would be forced to undertake the pumping and the settlers would escape their responsibility for water rates.

There was, George Chaffey contends to-day, a distinct under-current of that State Socialism, now peculiar to Australia, running through the agitation. R. S. Hoops, one of the satisfied settlers, told the Royal Commission of 1896 that when he arrived in 1892 there was an impression at Mildura that the Chaffeys had not sufficient capital to carry on, and that if they were out of the way the Government would be bound to step in and take over the work. The idea was that the Government, in taking over the whole business, would make the profits instead of the Chaffeys. This almost exactly expresses the

view, an article of faith of thousands of Australians to-day, that profits from all forms of public utility enterprise should go to the Government and not to private capitalists. Unfortunately, the Australian experience has been that when the Government takes over a business, profits vanish and generally efficiency too.

The seepage question created a new and more alarming complication than that caused by the supposed loss of water. The soakage released certain alkaline elements in the sub-soil, principally of the lower levels. These spread laterally and upwards through the soil, and on coming to the surface produced a saline incrustation which caused considerable damage. All trees were affected, and vines and vegetables were killed by this deposit.

Seepage was first noticed about the end of 1891. In 1892 it was found in some instances to extend up to 200 feet from the bank of certain channels. It is not surprising that great alarm was caused by the spectacle of dead and dying trees and vines on ground covered with this gypsum-like deposit. Still, the extent of the damage to planted land was much exaggerated by those who thought it was their interest to discredit the Chaffeys. Giving evidence before the Mildura Royal Commission of 1896, George H. Tolley, who was Secretary of the Mildura Irrigation Company, and a violent anti-Chaffey partisan, submitted statistics which showed that only 191 acres of planted and 305 acres of unplanted land, equal to three per cent. of the lands under irrigation, were affected by seepage.

All this trouble was caused by circumstances beyond the control of George Chaffey. His Riverside experience had shown him that unlined channels, even when the land was of a porous sandy character, could be made to convey water efficiently. Though there might be some loss at first, this would be finally prevented by a kind of "skin," known to miners as "slickens," formed in the bed of the channel by contact with the water. He anticipated a considerable margin of loss at Mildura owing to the sandy nature of the ridges along which the main channels ran, but did not consider this would be great enough—nor was it actually—to jeopardize the success of the scheme. It was impracticable to line the channels with concrete. The cost in those days—£1500 to £1700 per

mile*—was prohibitive. It would have made the land too costly for settlement. So he went ahead, and when leakage was proved, agreed to bear the cost of pumping the water lost by percolation.

But the loss was not solely caused by natural leakage. A new enemy of Mildura appeared soon after the construction of the channels, and, finding the environment most favorable, multiplied by myriads. This was a small indigenous crustacean termed "yabbie"† in the Australian vernacular. These creatures, by riddling the sides and beds of the channels with burrows, proved a most serious pest, and caused enormous loss at Mildura. The yabbie is not found in California, and George Chaffey was taken by surprise when he saw its devastating effect on the channels.

A. W. Howitt, the scientist and explorer, then Secretary for Mines, who was appointed in September 1892 to investigate the complaints at Mildura, quotes an instance of a nest of seven of these small crayfish being found a chain and a half distant from an emptied subsidiary channel. When this was filled the water streamed out of it into the end of the burrow. The great multiplication of the yabbies made the pest an extremely difficult one to deal with. To line the channels throughout with concrete or cement was impracticable, and so this trouble, all the more vexatious for being caused by a creature so insignificant in itself, added to the discord at Mildura, though neither party was to blame.

Deakin was asked after his address at Mildura in June 1892, whether any mention had been made in the agreement regarding the cementing of the channels. He said no mention of this or of any other method had been made. In America he had not seen channels cemented except for a few feet at special points. The method of supplying water was left solely in the hands of the promoters in the first instance, and of those who took over the promoters' works (*i.e.*, the Mildura Irrigation Company) in the second instance.

To summarize, the position early in 1892 was :—

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* The Mildura channels are still mostly unlined, and are giving satisfactory service.

† This is an Aboriginal term. The scientific name is *Paracheraps Bicarinatus*.

The " boom" had burst, and the whole State was under a cloud of depression, the blackest in its history. Within twelve months nearly every bank and financial institution in marvellous Melbourne, world-renowned for its wealth, was to close its doors. The money market was first disorganized then paralysed.

The Mildura Irrigation Company was in financial difficulties owing to its failure to collect rates due for water supplied to the settlers.

Serious uneasiness was felt at Mildura regarding the marketing question in view of the falling off of the consumption of fruit, following the financial crash.

Many settlers had failed to meet their obligations to Chaffey Brothers Limited.

The agitation for free water fathered by B. C. Harriman led many settlers to believe that if the promoters were eliminated from Mildura, the Government would be forced to take control, and the position of free water would then be reached. This belief led to a four years' campaign by a powerful minority to oust the Chaffeys.

Leakage from the channels was beginning to cause anxiety.

George Chaffey's absence had enabled the disaffected and turbulent element to gain a following of honest but misguided and disappointed settlers.

The conditions of sale of Mildura land, *The Red Book* and Chaffey Brothers' advertisements had all stated that each landowner would be called upon to pay a yearly charge at an equitable rate, sufficient to meet the cost of distribution of the water and working expenses and maintenance of the irrigation machinery and works. But in order to lessen the burden of settlers during the years when little return from the land could be expected, Chaffey Brothers bore the whole cost of pumping and distribution until July 1, 1890, the date on which the works then in being were handed over to the Mildura Irrigation Company. The company then struck its first yearly rate of six shillings on each acre sold. The response was disappointing; the amount received was not nearly sufficient to pay current expenses. In order to keep the pumps going, Chaffey Brothers advanced large sums to the irrigation company. When the total stood at over £6800, Chaffey Brothers notified the irrigation company that this accommodation could not continue indefinitely, and that the limit had been reached. The result was that the irrigation company was unable to pay its employees and generally to perform its functions efficiently.

This state of affairs soon caused alarm, and was in fact the root cause of all the internal trouble which followed.

On Thursday, April 14, 1892, the outside public first obtained knowledge of the dissatisfaction at Mildura by a special meeting of shareholders called to consider the position, powers and obligations of the Mildura Irrigation Company.

A committee, consisting of N. Jamieson, G. H. Risby, S. D. Glyde, W. S. Barrows and H. P. Graham, was appointed to confer with the directors, with power to inquire into the constitution, finance and general management of the affairs of the company. J. J. Lever was later added to the committee as secretary.

That free water was not contemplated at the time is shown by a suggestion made by H. Williams and E. C. De Garis, in *The Cultivator* of April 16, 1892, that Chaffey Brothers Limited should contract with the Mildura Irrigation Company to supply all water required at — — shillings an acre. (The exact amount was not specified.)*

The appointment of the committee marked the formal beginning of the disaffection. The choice of personnel was a tragic mistake. The committee proved partizan and short-sighted. It pandered to the rowdy element from the outset, treated the promoters with unpardonable discourtesy and, by spreading around dark rumors of sensational findings during the course of its investigations, created excitement almost amounting to panic in the community. Commenting on the activities of the committee, *The Cultivator* of May 28, states :

Sensational rumors were being circulated from irresponsible quarters. It was alleged that the directors of the Mildura Irrigation Company had been informally elected, and that their acts were invalid and the rate levied unenforceable.

The Cultivator added :—

If the objects had been to lower the value of property, damage the settlement in the eyes of the outside world and generally to check the prosperity of Mildura, it must be said that a measure of success has attended the effort. The trouble arose primarily from the shortness of funds caused by the tardiness of shareholders in paying their water rates. A considerable sum was advanced by Chaffey Brothers to enable the company to carry on while waiting

* A similar arrangement made at Renmark proved successful.

for the money to come in, but a limit had to come to this accommodation as the principal company has its own expenses to meet. The revenue of the irrigation company is derived solely from rates. If landholders neglect to pay up how can the company pay its way ? This is the real source of the trouble—that rates have been allowed to accumulate to an undue extent.

The interim report of the shareholders' committee was read at the annual meeting of the Mildura Irrigation Company on Tuesday, May 31, 1892. It comprised forty-one folios of closely written matter. The chief grievances were stated to be :—

The committee had been treated in a cavalier manner by George Chaffey, who had refused to give it important information ;

The Mildura Irrigation Company was a sinister organization, designed to fasten on the settlers obligations which should be borne by Chaffey Brothers Limited ;

Persons on the directorates of Chaffey Brothers Limited, and the Mildura Irrigation Company Limited, had executed secret covenants which violated the rights of settlers ;

There were informalities in the appointment of the Mildura Irrigation Company's directors ;

George Chaffey, without having any specific authority to control affairs, had assumed supreme power over the Irrigation Company, while in important matters the local directors had been ignored ;

The committee had not been able to obtain details of expenditure incurred in carrying on the company, but it was estimated that the irrigation of about 6000 acres was costing £12,000, and it was computed that if all the arrears were got in, a deficit of £3000 would still remain ;

Many people had paid water rates to Chaffey Brothers Limited, as agents, and these amounts, instead of being handed over to the irrigation company, were used in reduction of the company's liability to Chaffey Brothers Limited.

Certain channels and boilers were not efficient.

The outstanding features about the interim report were its violent language, totally unsupported suggestions of corruption, the publication of its contents before the Chaffeys had had an opportunity of seeing it and of replying to the charges made, and the malignant emphasis with which it was read to the shareholders by J. J. Lever.

The course followed by the committee not only violated fair play, but revealed a lack of consideration for the interests of Mildura. The report contained absolutely no recognition of the great achievement of the man who had created Mildura, and was conspicuously in error in its view of the organization raised to secure a perpetual water right for the settlers. The Mildura Irrigation Company and the series of agreements complained of had been set up under the supervision and with the approval of the State Commissioner of Titles representing the Crown.*

The report laid most stress on things unimportant, and missed genuine grounds of complaint. Worst of all was its effect on the public mind. Mildura was never regarded in the same light after the meeting of May 31, 1892, the fifth anniversary of the signing of the indenture.

Commenting on the meeting to which the interim report was submitted, *The Cultivator* of June 4 stated :—

" The Briton's boast is that he is always prepared to see fair play. That characteristic was conspicuously absent. From the outset it was apparent that turbulent spirits were in possession, and that the supporters of one side only would be accorded a fair hearing, and till the last moment the meeting was in a simmer of excitement. . . . . It was complained that George Chaffey had treated the committee in a cavalier manner, and that he had resented as impertinent the enquiries put to him. When we hear the other side we shall be able to judge whether he was justified in taking up this position. There is little doubt, however, that this unpleasantness imparted a flavor of acerbity to the subsequent proceedings, whether the members of the committee were conscious of it or not . . . . but, however the committee may have striven against any appearance of bitterness, the report did not appear to be free from it. The conclusion arrived at by most people was that any slight the committee had suffered had been amply revenged. . . . The way the report was read by the Secretary (Lever) was calculated to drive home every point against Chaffey Brothers. . . . It had a powerful effect on the younger settlers, whose minds had been inflamed by the hectic nonsense published in certain newspapers. . . . There was not one word of generous admission that no evidence of corrupt motive had been brought to light. . . . The real object of the com-

* Alfred Deakin had made this clear in his address to the Mildura settlers on June 28, 1892, when he gave a detailed account of the formation of the Mildura Irrigation Company.

mittee's labors was not to spring a terrifying or sensational report on the settlers, but to devise remedies for any defects found to exist."

At this period the Earl of Ranfurly appeared in the role of a peacemaker. After conferring with both parties he propounded a settlement which, for the time being, brought about the semblance of peace. Before the adjourned meeting, it was announced that George Chaffey was preparing a full reply to the charges contained in the interim report. Commenting on this, *The Cultivator* of June 18, stated :—

It is a great pity that a severe reply has been invited. Little or no consideration was shown for the two men whose names and works are honored over a hemisphere. Every point was presented in the most unfavorable and discouraging light, and circumstances that to every unprejudiced mind were favorable to the promoters were so arrayed as to appear discreditable to them. Then it was not enough that this report should be read to the shareholders with the most malignant emphasis. The mischief was made complete by the printing and circulating of the document. That was an outrage in the circumstances, and nothing can wholly repair the injury that the settlement will sustain in consequence. . . . The promoters have sore reason to be incensed.

At the meeting of June 14, the settlers showed their confidence in the promoters by re-electing them to the board of directors of the Mildura Irrigation Company without waiting to hear George Chaffey's reply to the charges broadcast by the committee. This action was taken on the advice of the Earl of Ranfurly.*

On June 24, 1892, George Chaffey issued his reply to the interim report of the Mildura Irrigation Company Shareholders' Investigation Committee. This masterly document was George Chaffey's *Apologia pro sua vita*. As an exposition of the principles on which the Chaffey colonies were founded, it is an outstanding contribution to the literature of irrigation. George Chaffey was too great a man to use the weapons of his adversaries. Brushing aside personal consideration, he devoted himself to demonstrating that the Mildura Irrigation Company, the pivot of the controversy, was purely a legal method of

* Lord Ranfurly's proposal that the board be enlarged from five to nine with the object of giving the settlers increased representation, was also accepted by both parties, and G. Desailly, S. D. Glyde, A. J. Pearson and H. E. Barnes were elected directors of the Mildura Irrigation Company.

securing the water right and for distributing the water—an organization set up solely in the interests of the settlers themselves, protecting them against every possible contingency which might jeopardize the continuity of the water right.

He showed that every step had been taken with the approval of the Commissioner of Titles, representing the Crown, and that none of the agreements, bonds or documents affecting the irrigation company could be of personal advantage to anyone except the owner of the water right. To set the issue beyond all possible doubt, he recommended that the Government should take the necessary action to have all the deeds embodied in an Act of Parliament. Three years were to elapse before a supine Parliament could be prevailed upon to act. The uneasiness created by the shareholders' committee would have been allayed for ever there and then, had the Government and Parliament of Victoria done its duty.

In George Chaffey's reply, the great Mildura controversy touched its highest plane. Marked by dignity, logic, comprehensiveness of treatment and serenity of expression, it conveyed a bird's eye view of the four years' struggle. After a detailed examination of the legal machinery devised for the establishment of the water right, he showed that every step had been taken with the consent and approval, and in many cases on the advice of the State Commissioner of Titles. He pointed out that the committee had made an absurd mistake in regarding the Mildura Irrigation Company as an ordinary trading company when it was an organization designed to secure the perpetuity of the water right and to take over, operate, and hold in trust for the settlers the pumping machinery and channel, and proceeded :—

"The transfer of the water right rests upon a legal foundation which was the joint production of the ripest experience in water management, and of the best legal talent in the Colony of Victoria. Barristers and solicitors—experts in company law, and experts in conveyancing—were laid under contribution in perfecting the organization, and many learned and competent critics concur in the opinion that the purposes in view are amply served and secured."

Commenting on George Chaffey's reply under the heading "A Master and His Methods," *The Cultivator* of June 25, 1892, described it as a comprehensive and lucid exposition of the

Mildura scheme. "Regarded merely as a contribution to irrigation literature, it has a high value, as it explains the fundamental principles of the settlement which he created. It is the achievement of a comprehensive, far-seeing and well stored mind. Disregarding petty and paltry issues, Mr. Chaffey goes right to the heart and marrow of the subject, the security and perpetuity of Mildura's water privileges, and whatever be the ultimate result, it must be admitted that he handles the subject with skill and power.

"Although grave provocation was given . . . . Mr. Chaffey confines himself strictly to fact and argument. His case is reasoned with a dignified calmness which must win admiration and respect. *This scheme and this great settlement are the result of his thought, experience and energy, and the welfare of the colony is rightly regarded by him as a consideration which should over-ride every other* . . . The reply throughout is couched in terms calculated to allay irritation and to establish a feeling of security. . . . In Mr. Chaffey's lofty manner of dealing with a question involving the welfare of thousands, the possession of large capacity and power is manifested. The reply both in manner and matter is in marked contrast with the report of the committee. In the latter, every fact, circumstance and argument seem to have been used with the view of creating distrust and alarm. . . . In matters of detail there have been doubtless many shortcomings, but compared with the actual solid visible achievements they affect Mildura's lustre less than do the spots the brightness of the sun. We counsel the settlers to stick to the men who understand the business."

The next stage of the controversy was marked by one of the most memorable events in Mildura's history. This was the last visit to the settlement during the Chaffey regime of Alfred Deakin. The speech delivered by him on Tuesday afternoon, June 28, 1892, was in a sense his farewell to his irrigation policy. He had now plunged into the great conflict which at the dawn of the next century was to end triumphantly with the birth of the Commonwealth of Australia. The fight for Federation was henceforward to occupy his whole attention, and though he retained while he lived his personal interest in irrigation, as a cause and a policy it knew him no more. The man who

typified perhaps more than any other Australian all that is finest and noblest in Australian ideals, was about to mould close to his heart's desire the Federal scheme of the young nation soon to be called into being.

Deakin appeared at Mildura in the role of an optimist and a peacemaker. He mildly reproached the faint-hearted and the factious, pointing out that there was no royal road to success, and assured the people that their difficulties were those of any great pioneering enterprise. He urged the wavering not to listen to the evil counsels with which they were surrounded, and foretold for Mildura the prosperity which has since come to pass.

Deakin met complaints regarding the condition of the channels and the works with the suggestion that Chaffey Brothers be asked to name a price at which they would undertake to deliver to each settler the water to which he was entitled. The burden of meeting the settlers in a fair spirit would then be cast on the promoters. If they undertook to deliver water they would be bound to keep the channel efficient. This proposal, which would have solved all the difficulties arising out of the complaints of seepage, defective channels and plant, was accepted by George Chaffey, but unfortunately for all parties, the influence of the "radicals" section prevented such an admirable solution of the controversy being arrived at.

The Earl of Ranfurly presided at this historic meeting. After describing the miracles wrought by irrigation in California, Deakin gave his audience the very timely reminder that the Americans had not dropped into the possession of their splendid orchards and vineyards without labor. Their prosperity was built up bit by bit from small economies and by close application to the soil on which they lived. The weak-kneed and weak-backed were gradually squeezed out. Success came only by perseverance and undaunted toil. He spoke eloquently of Mildura's prospects :—

"Mildura to-day occupies a wholly exceptional position, not only with regard to its water, not only with regard to its great advantages of climate and soil. You know the troubles you have undergone, and are undergoing, and I doubt if they will ever be less in any part of Victoria. You have therefore got at the present time

practically five years' start of the rest of Australia. There are parts of the Goulburn Valley where a few small estates are being cultivated in the same manner, and with the same end in view, and a few others dotted about elsewhere ; but speaking broadly and generally, Mildura as a whole has got five years' start of the rest of Australia in the production of irrigated fruits. Now, what is the value of five years' start, knowledge and experience ? It can scarcely, I think, be measured in money. You have got this great start, and having got the start, the chief question one might ask is—Do you intend to keep it ? Remember, this is the greatest private enterprise any Colonial Government ever sought to encourage ; it is the greatest private enterprise in Australia ; it is one of the biggest of its kind in the world, and the germ of anything you like in the future."

Deakin recommended the settlement of differences of opinion by the good old English way of discussing them and gave the settlers this good advice, which fell on deaf ears as far as the militants were concerned :—

" I appeal to both parties to let the words that have been said be the last on both sides. Any matter that has to be settled can be dealt with in an executive way. Find a practical solution of all your difficulties. Let it be arrived at without reports and replies ; have everything *viva voce*, and have nothing reported in any way until an agreement is arrived at ; then publish that to the four quarters of the earth. (Loud applause.)

" That is the best advice I can offer you as well-wisher of the settlement. I honestly believe you have natural conditions and prospects unsurpassed. I never saw a better soil or climate or water supply. I never saw a settlement with as large a water right. I never saw an irrigation colony with more advantages.

" I address myself to those of the audience who are older than myself, and I appeal to them to settle their differences in a reasonable English way. The reputation of Mildura to-day stands high everywhere. You have only got to settle these differences, when the influx of people and capital will proceed as before.

" . . . . . I very much mistake the promoters if they do not give a reasonable acceptance to a reasonable proposal without the slightest hesitation or delay." (Cheers.)

Replying to a vote of thanks, Deakin said he had been associated with Mildura from the first hour it was launched. He was bound to Mildura by strong ties of interest and personal affection. He believed they had a future before them which should surpass their expectations. They had the lead, and he

believed they would keep it. Mildura already stood well before the country, not only on account of its products, but on account of the character of its citizens, and he hoped other districts would be able to say : "The people of Mildura have set us a magnificent lesson ; let us follow them ! "

Lord Ranfurly said he thought the success of Mildura in the past would be nothing to the success of its future. Four years ago he and his partner had purchased land there. The returns were better than they first estimated.

Commenting on Deakin's address, *The Cultivator* stated :— "That the visit of the Hon. Alfred Deakin has been attended by the happiest results, will be admitted by all concerned. There had been heavy cannonading on both sides, and the contending parties would soon have been at death grips with each other. . . . . Mr. Deakin was pre-eminently fitted for the task allotted him. He has seen more, thought more, written more, and said more of irrigation than any man of his time. It is his special subject, and he has made the reclamation of the vast areas of Victoria by its means the central object in his political career. Then, he is not only a barrister of high standing, but he has gifts of expression such as few men can lay claim to. . . . . In a few hours he succeeded in unravelling the tangle, in narrowing down a controversy over a dozen different issues to one or two definite points, and in bringing the parties together in peaceable conference to discuss the best way of settling the few remaining difficulties. All this he effected with the most admirable tact. Everybody was treated with the utmost consideration, and when it was all over nobody felt humiliated. . . . ."

CHAPTER XVI

THE WRECKERS

"We much prefer that our work should speak for us. Mildura has been built on an enduring basis, and will outlast the present depression. Its ultimate success in spite of the wanton efforts to wreck it now being made will be an unanswerable reply to our critics."—George Chaffey's letter to the Government on November 12, 1892.

UNFORTUNATELY for all parties, the hopes excited by Deakin's visit were not realized. The influence of those hot in faction destroyed the hopes of peace created by his visit, and the internecine warfare was soon resumed. The effect of the dissension was all too soon revealed. By the end of 1893, land sales had fallen in a single year from £100,000 to £9501. The loss of ninety per cent. of the new capital brought into the colony during the previous year was catastrophic. But for George Chaffey's indomitable courage Mildura would have perished there and then.

About this period, when Melbourne financial institutions were collapsing like houses of cards, he was advised by Levien and others to throw Chaffey Brothers Limited into liquidation, for the purpose of reconstruction. But George Chaffey was made of sterner stuff. He positively refused, declaring he would see the fight through to a finish. It would have been a better solution for himself personally, but he knew that the failure of the company at that immature stage, when the trees were scarcely bearing, would have meant the complete destruction of the settlement, and Mildura would have reverted to wilderness. By a miracle, considering the paralysis of the money market following on the bursting of "The Boom," Chaffey Brothers Limited succeeded in placing its second debenture loan, the prospectus of which was issued on September 16, 1892. The money was principally subscribed in England, through the effort of James E. Matthew Vincent.

This timely aid saved the situation for the time being, and, with money again circulating at Mildura and Renmark, there was some reason to hope that the settlers might yet be saved from themselves.

The enlarged Board of the Mildura Irrigation Company had given the disaffected section complete control. The anti-Chaffey directors, who formed the majority, used their power to deprive the brothers of any voice in the conduct of the company's business and, instead of concentrating on the serious problems which faced the company, devoted themselves to the task of making the position of the Chaffeys at Mildura intolerable. Outvoted on every question, George and W. B. Chaffey, though nominally directors, gradually ceased to attend meetings of the Board, and so the settlers lost the benefit of their experience and resource in facing current problems.

Having deliberately cut the Chaffey connection, the Mildura Irrigation Company, founded by George Chaffey to preserve the water right and to control the irrigation system, developed into an organization dedicated to the ruin of the man who had called the settlement into being. It permitted one-third of the settlers to become defaulters, and without rates it could not carry on its legitimate functions. Pumping ceased, and as there was no money for maintenance, pumping plant and channels fell into disrepair. This was made the occasion of further complaint against George Chaffey. The excuse for not suing in the law courts for rates was that there was a doubt regarding the legal power to compel the settlers to pay. George Chaffey and the moderate party urged that there should be a test case to settle the question once and for all, but the directors persistently refused to adopt this course.* Despite the advice of Deakin, the Government and Water Supply Department officials, the irreconcilables persisted in broadcasting their grievances, real and imaginary, and forced under public notice the fact that Mildura had fallen on evil days.

The first official cognizance of the Mildura complaints was taken in the latter half of 1892 when, following on correspondence between the Mildura Irrigation Company and the Govern-

* Evidence given before the Royal Commission showed that at the end of 1896, the uncollected rates of the Mildura Irrigation Company and the Mildura Irrigation Trust aggregated £20,000.

ment, the Secretary for Mines (A. W. Howitt)* was sent to Mildura to report. In August the Minister for Water Supply (Mr. George Graham) had refused the request of the Mildura Irrigation Company that he should interfere in the dispute. He advised a conference between the parties, expressing the view that a settlement could be arrived at by this means. Failing an agreement then, he offered to appoint an arbiter to deliberate with a delegate nominated by each party, the decision to be accepted by both sides. The irreconcilables declined to accept the arbitration, and on September 12, 1892, formally notified the Minister that they charged the Chaffeys with breaches of the indenture in respect of :—

Distribution of water ;

Non-fulfilment of the covenant relating to the construction of works " best adapted " for irrigation, inasmuch as channels were insufficient and defective and the apparatus defective ;

Denial of responsibility for seepage, soakage or waste ;

Refusal to strengthen the Billabong dam to prevent it being carried away by flood.

The Government then sent A. W. Howitt to investigate these charges. When he reached Mildura on September 26, he found a deplorable condition of affairs there.

It has been too much taken for granted, even by warm admirers of the Chaffey achievements, that Howitt's report was wholly unfavorable to Chaffey Brothers Limited. An analysis of this interesting document discloses that while A. W. Howitt did criticize certain aspects of the organization created to secure a perpetual water right, to distribute the water and maintain the works, he failed to suggest any method by which it could be replaced, except that which George Chaffey and himself suggested—the conversion of the Mildura Irrigation Company into a Trust, acting under the authority of Parliament. The weaknesses Howitt found were those pointed out by George Chaffey in his reply to the interim report, and that they were permitted to continue was due to the inactivity of Parliament, which was the only authority capable of removing them.

* Howitt was a distinguished scientist, notable as anthropologist, geologist, petrologist and botanist. His exploring experience and bush craft caused him to be chosen by the Victorian Government to lead the Burke and Wills Relief Expedition of 1861.

On the other hand. Howitt did not fail to recognize the greatness of the Chaffey achievements at Mildura, and the folly of the fratricidal strife he found raging there. He was in error in asserting that the Chaffeys' unconciliatory attitude was partly to blame for this. It had been shown that the Settlers' Investigation Committee had dealt a mortal blow at the Chaffey interests when it gave the world its report, and the paralysis which followed the withering of public confidence and interest in Mildura was directly due to that wicked, reckless act. The Chaffeys were now fighting desperately for Mildura's very life. They would have been more than human if they had not resented the conduct of those who had struck an assassin-like blow against the colony and the personal welfare of every one in it. While refusing to conciliate the agitators, as distinct from the general body of settlers, they made every effort and every possible concession to restore peace, and to repair whatever mistakes had been made. They held throughout the goodwill and support of a majority of the settlers.

Howitt's findings were :—

(1) The Mildura Irrigation Company was organised solely in the interests of settlers, and its provisions were intended to control the Chaffeys and not to act in any way whatever in their favor.

Supporting this finding must be placed the opinion of Judge Finlayson, who was a Justice of the Supreme Court of California in 1926. When personally interviewed on this question by the writer, Judge Finlayson, one of many Australians who have won distinction in the United States, was kind enough to write the following letter in reply to questions put to him relating to the Mildura Irrigation Co. :—

My dear Mr. Alexander :

A comparison of the Articles of Incorporation of the Etiwanda Water Company and Association of the Mildura Irrigation Company Limited, reveals the fact that, in principle, the powers of the two companies are practically identical, and are ample to enable each to acquire water to be held and employed for the use of stockholders only in accordance with such by-laws, rules and regulations as they may adopt. Companies thus organized are known in California as Mutual Water Companies, and frequently, though not invariably, the word " mutual" occurs as part of the name. They

owe their origin to the genius of Messrs. George Chaffey and L. M. Holt, who first adapted and perfected the mutual non-profit system of water distribution when they organized the Etiwanda Water Company in 1882.

From that day to the present time no important change has been found necessary or desirable in the plan as originally devised, although mutual water companies during all that period have played and continue to play a most important part in developing and sustaining the agricultural and horticultural resources of this State, notwithstanding that water rights held by such companies have been the subject of some of the most expensive and extensive legal proceedings in the history of water litigation. I travel within the record when I say that it would be difficult to name any agency that has contributed more to the settlement of semi-arid lands such as ours.

It was a great pleasure to meet you during my visit to Los Angeles, and to hear of my native land. I look forward to finding time to visit Australia, and particularly the City of Bendigo, where I was born.

FRANK G. FINLAYSON.

(2) It was impolitic that the signatories of agreements between the two companies which placed liabilities on the settlers and removed a burden from Chaffey Brothers should have been the same persons, and those persons the Messrs. Chaffey.*

(3) The claim to free water was not maintained generally by the settlers. This question was "practically" dead as far as the great majority of the settlers was concerned, but it might be raised by a minority.

(4) The Chaffeys were responsible for the excessive seepage, and the damage caused by it, and the channels could not be termed in the words of the indenture the best adapted for irrigation.†

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* This certainly was impolitic, but it arose from the nature of things. At the beginning, Chaffey Brothers were the Mildura Irrigation Company. As settlement advanced their interests in it necessarily lessened. In the early days of Mildura, for convenience the offices of the two companies were in the same building at Melbourne, and the only persons who could be directors of the Mildura Irrigation Company were the Chaffey Brothers or their nominees.

† Howitt thought that George Chaffey ought to have known of the destructive effect of crayfish on Victorian channels and embankments, and that he ought to have known there would be percolation from a porous soil. He knew these things, of course, but the only absolute preventive was to cement all the channels. Had this been required there could have been no Mildura. The additional cost would have made the land too dear.

(5) The Mildura Irrigation Company had no control over the works, which it was required to carry on by taxing the settlers.*

Howitt recommended :—

There should be some check on the power of the Chaffeys to construct channels. Certain definite areas should be marked for settlement and the channels not run beyond these until the whole area had been disposed of.

Chaffey Brothers should contribute a sum equal to the increased cost of works and maintenance arising from defective channels.

Doubt as to the right of the Mildura Irrigation Company to recover rates should be removed by Parliamentary action.

The questions at issue should be referred to arbitration, the award to be final.

Howitt painted a striking picture of the condition of Mildura at this time in the following passages : —

" Anyone visiting Mildura must be struck by the magnitude of the work undertaken by the Messrs. Chaffey, and the extent of the work actually accomplished. The undertaking at Mildura was in some aspects an experiment, in which their Californian experience might not be altogether applicable, and as to which a large margin must necessarily be left for the unforeseen. An immense capital has been invested by them in developing the irrigation colony, and they thus deserve the most favorable consideration at the hands of critics.

But the Chaffeys organized the colony, they formed the Mildura Irrigation Company, and they practically controlled everything until a few months back. Therefore, in so far as their management

* Howitt put his finger on the weak spot here. The indenture gave the Chaffeys power to lay out works at their own discretion. When constructed these had to be operated by the Mildura Irrigation Company, which had had no voice in their creation, and had no means of requiring that they should be suitable and efficient. The view of the " moderates" was expressed by Jerome Maye, a settler who, giving evidence before the Royal Commission in 1896, said he understood the settlers were to take over the channels when they were passed by the Chief Engineer for Water Supply, and they were not to be handed over until he did certify, and that meanwhile the water was to be supplied free. This was partially done—no rates were struck until 1890 —but the department took the view that it had no right to interfere with the Chaffeys in matters of detail. Stuart Murray pointed out that had this been done, and the Chaffeys refused to proceed with the undertaking, the Government would have been blamed for interfering with the project. This view, though undoubtedly correct, had unfortunate results for all parties, because the feeling that the Mildura Irrigation Company was obliged to take over any works the Chaffeys might hand them was one of the imaginary difficulties at Mildura. As a matter of actual fact, it had no practical force, but when public confidence in the scheme was shaken by the irreconcilables, it was easy for these gentry to convince many settlers that the Chaffeys were taking advantage of them by handing over works which were unsuitable and inefficient.

up to that time may have brought about the deadlock, they must be considered responsible for it. There is a feeling of bitterness apparent in some settlers, which I think has arisen out of a want of consideration for the settlers, and an absence of a conciliatory spirit by the Messrs. Chaffey.

The existing system is in many respects radically faulty, and will have to be amended if the Mildura Settlement is to prosper, and one of the fundamental alterations necessary is to establish a proper equilibrium between the powers of constructing works by the Messrs. Chaffey and the settlers' liability to be rated. The organization of the settlers as a quasi self-governing and taxing body is in a great measure, and naturally so, productive of impatience of any control over the settlers by Chaffey Brothers Limited.

So far as I can judge the moderate party is in a majority. On one side of the moderate party is a smaller one favorable to the Chaffeys, which would, I doubt not, side with the moderate party in dealing with matters in an equitable spirit in which the relative rights and duties of both sides would be respected. There is another party, relatively small, which makes up by unanimity of purpose for being a minority. What its aims exactly are I am unable to say, but I hold it significant that one of its members told me they were determined to obtain their rights under their charter—the indenture —at all costs, and that Mildura would never prosper until the Chaffey Brothers were out of it. I believe the moderate party greatly outnumbers the extreme party.

Mildura ought to be an object lesson of the utmost value at the present time, when the circumstances of the colony require that settlement on the land shall be encouraged and our products increased. Thus the success of the colony would be a national gain, but its collapse nothing less than a national calamity. . . . . .

The principal cause of the present deadlock is a financial one. The Mildura Irrigation Company is not only unable to collect rates for current expenses, but owes an inherited debt of £4000. The settlers are in arrears to Chaffey Brothers on their land payments to the amount of £38,000, and are therefore liable to have the mortgages foreclosed. Chaffey Brothers Limited appears not to be able to pay its employees and contractors, probably pending the floating of their loan.* Credit has been stopped by the business people in Mildura, and the result is easily foreseen unless some change takes place. It is now the planting season, and full irrigation is, and will be for the next six months, a necessity. It is the universal opinion

* The £100,000 debenture issue soon afterwards successfully floated is referred to here.

that cessation of pumping will mean the collapse of the settlement. . . . . Time is absolutely necessary to work out an effectual solution. Therefore the first step should be to discover a *modus vivendi*. . . . . If the deadlock is permitted to continue, I see no prospect but chaos, which will necessitate intervention, and I fear this may be the aim of some settlers. . . . If the Mildura Irrigation Company is placed in liquidation, the organization of the settlers planned by the Chaffeys to take over their obligations under the settlers is gone. The Government cannot be expected to provide water, and it will then be for the Chaffeys to perform the covenants as to the diversion and distribution of water, and the maintenance of the plant and channels. Thus the position of free water would be reached, and I see reason to believe it would cause disaster to Chaffey Brothers Limited.

George Chaffey readily consented to confer with representatives of the Mildura Irrigation Company, and offered to pay one-third of the cost of pumping and distributing the water, thus meeting the direct loss by seepage. The irreconcilables, headed by S. D. Glyde, demanded one-third of the cost of pumping, distributing, maintenance of channels, and office expenses. According to Glyde's evidence before the Select Committee at the end of the year, it would have cost the Chaffeys about £8000 a year to concede the full demands. They offered to contribute about £4000 a year. The negotiations broke down and the deadlock continued. Glyde admitted that he had declined arbitration, preferring that Parliament should act. In his evidence before the Select Committee of Parliament which investigated this question, George Chaffey stated that the firm's ability to contribute was growing less every day. "Our business has been brought to a standstill, and we have no resources," he said.

The view of the moderate party was stated in evidence before this committee by James Rowe, who said he had no complaints. He had always understood that he would have to pay water rates, and thought fifteen shillings an acre a fair assessment. "I think the difficulties here now are more financial than otherwise," he said. "If the Chaffeys were in a position to assist us they would do so for the sake of peace, if for no other consideration, but I do not think they are in a position to do this." He contended that the power of the Mildura Irrigation Company to collect rates should be tested in a court of law.

In consequence of Howitt's report, the Water Supply Department, on October 26, formally notified Chaffey Brothers Limited that the indenture had not been carried out in the following particulars :—

The channels were not best adapted for irrigation ;

The water was not being distributed in accordance with the indenture ;

The business of fruit drying, preserving and canning had not been established ;

The Agricultural College had not been erected.

George Chaffey's reply summarised was :—

The Channels—

The loss from the channels would have been exceedingly small but for the crayfish. Flats built up by the Murray deposits showed that the silt would in a short time have made the channels practically impervious. The action of the crayfish was not due to negligence or failure on the part of Chaffey Brothers Limited.

Distribution of water—

(1) Every land owner had been put in possession of a water right exactly commensurate with his holding ;

(2) When the Chaffeys sold land, the water right which accompanied it passed just as much out of their possession as the land sold ;

(3) The use of the water was thus the right, privilege and responsibility of the purchasers, acting as a single body through the Mildura Irrigation Company ;

(4) The agreement was designed to induce the Chaffeys to sell Mildura land and to limit their holding ; with every sale a sufficient and proportionate water right had to be conferred ; the water right was to be incapable of separation from the land ; the right to water naturally carried the privilege of use and possession ; after the execution of the transfer the possession of both water and land passed from transferors to transferees ; therefore the Chaffeys could not be held responsible for the use and distribution of the water right which the agreement compelled them to transfer to all land purchasers proportionately.*

* Howitt, to whom this agreement was referred by the Government, said he was much impressed with its force. " If, as must be admitted," he wrote, " when all the land has been sold and the entire right to divert water has been transferred, the Chaffeys are relieved of further liability, it is difficult to see why the same principle will not apply when nine-tenths or even one-tenth has been sold and parted with.

(5) An immense number of water rights would have been practically useless unless organized on some basis of co-operation, hence the Mildura Irrigation Company, in which every acre in the colony carried one share.

(6) Thus the only water right Chaffey Brothers had any power to use and distribute is that belonging to unsold land. If, therefore, there had been any failure in the distribution of the water right conveyed to settlers, the Mildura Irrigation Company must be held responsible ;

(7) If the Mildura Irrigation Company did not care to undertake this work a means of assistance was always available in the Articles of Association, which gave the company power to enter into any contracts with Chaffey Brothers Limited for the supply of water. As evidence of desire to help the settlers Chaffey Brothers had borne the whole cost of distribution to July 1890, and had since advanced nearly £7000 towards the cost of diverting water ;

(8) A corporate trust with perpetual succession should be created by the Government to absorb the Irrigation Company and its interests ;

(9) The water works at Mildura were of a more substantial nature than those constructed by Irrigation Trusts expending Government loans, and were designed and laid out on the best known principles.

Alleged Neglect to Establish Fruit Drying and Preserving—

For two seasons fruit drying at Mildura had been carried out under the direction of a Californian expert. The quantity available for preserving and canning was too small yet to justify the establishment of a canning or processing works. In view of the favorable climate of Mildura, the grower had been encouraged to concentrate on the more remunerative work of drying, which he could perform himself.

Non-erection of the Agricultural College—

A technical breach of the indenture was admitted in regard to this complaint. It was not completed because the resources of Chaffey Brothers were wholly absorbed in other directions vitally important to the interests of the whole settlement.*

The vast outlay on Mildura was revealed by figures produced by George Chaffey in rebutting the charges of non-compliance with the indenture. The expenditure already certified to by the Water Supply Department was £310.000, and vouchers

* Howitt's comment on this complaint was that it was comparatively trivial.

representing an additional £100,000 awaited certification by the department. The expenditure for five years in relation to about 25,000 acres amounted to more than the sum covenanted for the full twenty years, and was nearly sufficient to secure titles for the full 250,000 acres. This surely was convincing evidence of *bona fides* in executing the agreement, he wrote. The expenditure to June 1892, on irrigation works alone was :—

Channels	.. £24,804
Pipes and conduits	.. 21,095
Machinery	.. 61,100

About 127 miles of main channels and 250 miles of subsidiaries had been constructed. The outlay on irrigation works alone in five years was three times as great as the indenture required in that time for all purposes. The expenditure per acre for irrigation works was six pounds, and for other improvements, etc., about twice as much more. The indenture required a total expenditure for all purposes of £1 16s. an acre.*

An Act of Parliament passed on March 3, 1893, exempted from rating all land held in freehold by Chaffey Brothers Limited, and in addition removed all doubts regarding the legal power of the Mildura Irrigation Company to levy rates.†

Neither Howitt's investigation nor the Select Committee's enquiry had led to any practical solution of Mildura's difficulties, so on March 17, 1893, the then Minister for Water Supply (J. H. McColl)‡ instructed the Chief Engineer (Stuart Murray) to report on the complaints. His findings, submitted on August 1, 1893, were contained in a most comprehensive and lucid document. Stuart Murray was an authority of the highest standing on irrigation theory and practice. Apart from his professional status, he was a public servant distinguished by rare force of character and outstanding judicial qualities. His report, while admitting that mistakes had been made, was unequivocally favorable to the Chaffeys.

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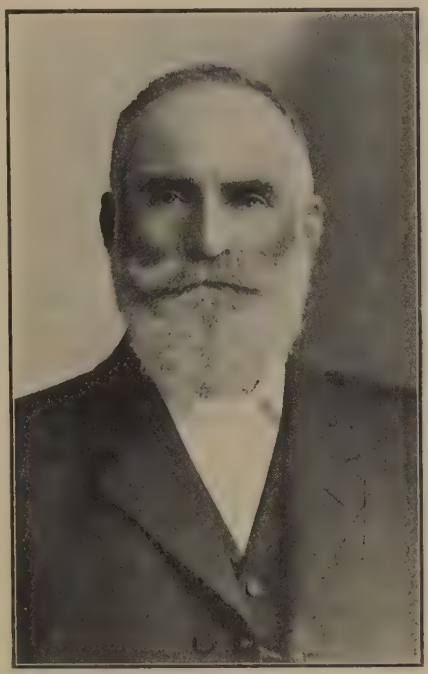
* By the end of the year 50,194 acres had been transferred from the Crown to the Chaffeys.

† The alleged doubt of power to enforce rates was the excuse put forward by the radicals in control of the Mildura Irrigation Company for its failure to collect the large amount owing at the end of 1892—£5679. It was based on a legal opinion on ex parte questions submitted by the investigation committee.

‡ A son of Hugh McColl, the earliest advocate of irrigation in Victoria.

"There is no reason to believe that the licensees have acted other than in perfect good faith in the construction of the machinery and works," he wrote. "Errors of judgment here and there on their part there may have been; possibly there has been want of foresight in some matters; they have certainly been the victims of misadventures in others, but such contingencies are incident to every great enterprise, and the mistakes and misfortunes that have occurred in this are such as every engineer of experience is familiar with, and are not such as ought to discourage the promoters of an otherwise sound undertaking.



STUART MURRAY

"The feeling of the settlers towards the management of Messrs. Chaffey Brothers is much divided. There is no doubt a majority favorable to the management and desirous of seeing it continued, subject to the redress of all substantial grievances. At the same time there is a united and powerful hostile minority disposed to adopt the view that redress will not be obtained except by means of a radical change, but if it were once clearly shown what tenable grounds of complaint there really are, and an assurance were forthcoming that some efficient remedy would be promptly applied, the greater number of the minority would change sides and join in assisting the firm to achieve the success of the undertaking.

"The irreconcilable minority is small. It seems to anticipate the active interference of the Government, and probably the supercession by it of the functions of the licensees, and the resumption of the privilege granted them. Such a consummation I look on as quite out of the question. Probably when the small minority is convinced of this, it will also adopt a more moderate view and consent to accept the possibilities of the situation and make the best of them.

"The licensees should be required to contribute rates in respect of freehold lands held by them and commanded by the works, only where such lands are withheld from sale in anticipation of a rise in value. When the scheme for the irrigation of a section of the Mildura property has been settled, that ought to be thrown open by the licensees at prices fixed, and intending purchasers allowed to select wherever they choose within its limits. Thus no imputation of relieving themselves of responsibility at the expense of the settlers would lie. It has not been attempted to be shown that the unsold lands commanded by the channels have been withdrawn from sale. On the contrary, they are all shown as subdivided into allotments and prepared for selection on the lithographed plans issued by the firm.

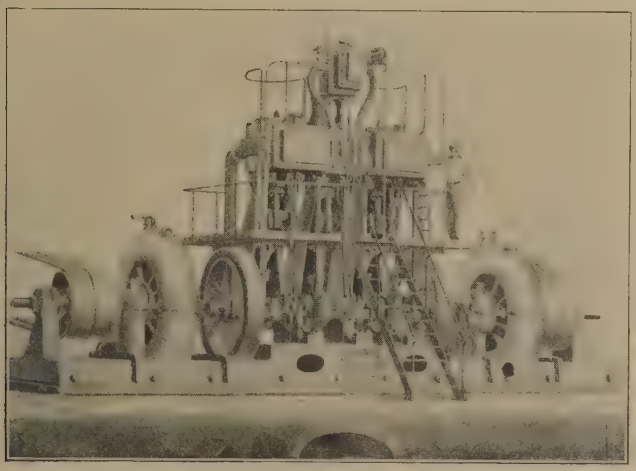
"The settlers bought land in what they knew to be a progressive scheme—a scheme undergoing development, and it is clearly incumbent on them to assume all the incidents of the situation they freely and voluntarily accepted. If the licensees be left out of the question altogether, if the settlers be considered merely as a group of land holders owning and managing a scheme for their joint benefit, it is clear they cannot levy rates on lands unalienated. They must wait until the lands are sold before they can obtain from them any contributions toward the working of the scheme. On this principle the land held by Chaffey Brothers ought not to be rated except in cases where it is held for speculation."*

Stuart Murray's findings were :—

The channels would with one trifling amendment be equal to the service of the whole of the commanded lands if they were put in proper order and so maintained.

* This is a splendid statement of the position, and an effective reply to the settlers' contention that Chaffey Brothers should pay rates on all land held by them.

The pumping plant, with an addition noted as necessary at Nicholl's Point, if kept in good order, would be equal to the same service everywhere, while several of the plants were unquestionably equal to more than their duty. Pumping plants and channels adapted with a few alterations and additions for the service of about 30,000 acres, are called on to serve 10,000 acres only, and the defects, considerable as they are,* are not yet such as to prevent the works developing this degree of efficiency.



"THE CHAFFEY"

Billabong pumping engine, designed by George Chaffey, and built in England by Tangye's Ltd. in the late eighties. Though condemned by the critics at the time, it is still doing the work for which it was originally intended.

The defects of the machinery are that the power available at some points is too great and at others will require to be supplemented to meet the necessities of the areas commanded. The other defects are not of construction, but of maintenance merely.

The defects of the channels are due to the porosity of the soil, to the imperfect consolidation of some portions of the built banks, and to the burrowings of crayfish.

* Due almost entirely to imperfect maintenance following on the deadlock between the two parties.

It is the duty of the licensees to put the pumping plant and channels in such a state of efficiency as will fit them for the proper conveyance of water to the areas they command. It will be their duty, as each section of the scheme is completed, to hand it over in a like condition of efficiency, formally and with full assent of the parties to the Mildura Irrigation Company, or other organization representative of the rights of the settlers. The licensees should make some reparation for damage by soakage on the basis of misadventure and not of wilful injury or gross negligence.

It was not until two and a half years after Stuart Murray's report that the Government cut the Gordian knot by the action which George Chaffey had suggested in 1892. On December 24, 1895, the First Mildura Irrigation Trust was constituted by Parliament to take over the obligations and functions of the Mildura Irrigation Company. The Act made Chaffey Brothers Limited responsible for the efficiency of the works and channels handed over to the successor of the Mildura Irrigation Company. The Trust district comprises 45,000 acres, of which 15,300 acres had been sold by Chaffey Brothers Limited.* It still controls the irrigation system of Mildura.

* In 1896 there were 560 horticultural ratepayers, 280 non-resident ratepayers, and about 680 urban ratepayers at Mildura. The area of rateable land was 15,067 acres, and the Mildura Irrigation Trust district comprised 45,070 acres. There were more than 100 miles of main, and 300 miles of lateral channels, commanding 33,093 acres, of which 31,788 acres were attached to the Billabong system.

CHAPTER XVII

THE ROYAL COMMISSION

"I appear before you stripped of all interest in Mildura except a desire to see it prosper."—George Chaffey, giving evidence before the Mildura Royal Commission, July 2, 1896.

THE financial position of Chaffey Brothers Limited became more desperate as the months passed. The local money market was paralyzed by the banking crisis of 1893, and in consequence the second £100,000 debenture issue of Chaffey Brothers Limited was a fiasco—only £14,900 was placed.

Any other man would have accepted the situation; but George Chaffey, for Mildura's sake, refused to acknowledge defeat. In 1894 he went to London with a proposition for refinancing Chaffey Brothers Limited by the sale of the Renmark concession. He received a favorable reception, and so confident was Lord Hillington, of Glynn, Mills and Currie, of success, that he advanced £20,000 in anticipation of the sale. A strong board, which included Lord Victor Cavendish and Sir John Gorst—city men of the highest financial standing—was formed. The Marquis of Lorne had agreed to act as a trustee of the debenture issue. Just two days before the date fixed for receiving subscriptions, the New Zealand Loan and Mercantile Agency, one of the best-known of the Australasian pastoral companies, got into difficulties for the second time. It had been reconstructed in 1892. Two of its London directors were on the board which had undertaken the Chaffey proposition. It was impossible to go on in the circumstances, and the project was dropped.

Thus vanished the last hope of securing capital to tide Chaffey Brothers Limited over the crisis which had begun in 1892, and towards the end of 1895 George Chaffey returned to Australia.

On learning the failure of the London negotiations, J. F. Levien and W. B. Chaffey decided to throw the firm into

liquidation—it was not until he touched the shores of Western Australia, on the return journey, that George Chaffey knew this decisive step had been taken. In London he had met General Annankoff, one of the engineers directing the construction of the Trans-Siberian Railway, who urged him to undertake, under the auspices of the Government of Imperial Russia, reclamation work in Siberia. It was characteristic of George Chaffey that he declined a most flattering offer, which would have relieved him and his family of future financial anxiety. During this visit to London he was elected a member of the Institution of Mechanical Engineers.

The decision to wind up Chaffey Brothers Limited was taken on December 10, 1895, and the liquidators' report was issued on April 30, 1896. They found that the total amount owing, including £134,067 due to various banks, to be £258,393. Of this sum £237,210 was secured, leaving about £21,000 owing to unsecured creditors.* The consolidated profit and loss account showed an apparent profit of £125,460, but, deducting the amount written up by a revaluation of the concessions, a net loss of £10,757 on the eight years' operations† was disclosed. Ignoring the revaluation, the net profit on land sold was £325,771. Against this were direct charges, £123,657, and establishment costs, £212,871. The indebtedness of the subsidiary companies was £10,273.

The liquidators found that the "dead weight of interest—due largely to the meagre proportion of paid-up capital actually received in cash, made it impossible for the company to succeed. At the suspension the interest charge was £27,500 a year.‡ Only £44,770 was received in cash for shares from first to last, a sum quite inadequate for a company conducting

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* A Supreme Court decision had declared that the debenture holders were entitled to the whole of the unpledged assets of the company.

† In April 1894, two firms of valuators had valued the Mildura and Renmark concessions at £1 an acre—£500,000 in all—"should the demand for land continue," and in consequence the assets had been written up by £136,000. But owing to the dissensions at Mildura, land sales fell to zero—from June 1894 till the liquidation the aggregate sales were under £12,000—and the liquidators held that the suspension of land sales made the concessions practically valueless.

‡ It was pointed out in evidence before the Royal Commission that the liquidators had not credited this item with the interest on amounts due by purchasers of land. The periodical payments of the settlers included principal and interest at 5 per cent.

operations under extremely novel circumstances on a scale of great magnitude."

From 1892 to 1894, the great financial panic notwithstanding, capital was acquired by the issue of debentures—£114,900 in all, at a total cost of £28,395. At the liquidation, £147,327 was due by purchasers of land at Mildura and Renmark, after providing for bad and doubtful debts. Mildura settlers owed the company £46,100. Renmark's arrears were about fifteen per cent. The liquidators might have said that this was one of the main causes of the failure of the company.

The following passage in the report threw more light on the real causes of failure than all the figures quoted : —

" Considerable friction existed between the company and a section of the settlers as to seepage, the state of the channels and the relative rights of the parties. There is no doubt that these disputes seriously affected the sale of land, and the delay of successive Governments in promoting legislation on the subject also injuriously affected the interests both of the company and the settlers."

That the liquidators failed to appreciate the pioneering significance of the Mildura and Renmark enterprises is shown by this extract :—

" In face of an almost complete cessation of land sales, it was manifestly impossible for the company to meet its liabilities and, from this point of view, it ought to have stopped long ago."

As to the propriety of the company refusing to accept defeat, it might have been added by the liquidators that the principal creditors were aware of the position, and had agreed it was better to continue. Any creditor who thought otherwise had the power to stop the company at any time. As Levien pointed out before the Royal Commission, no rights were violated, and, had the Renmark sale been effected, there would have been no need for liquidation. But the real reason why George Chaffey insisted on continuing the fight was that had the promoters passed out at that immature stage of Mildura's development, the result would have been the extinction of the settlement, on which above £1,000,000 of settlers' and promoters' capital had been spent. The position was well expressed by W. F. Salmon, afterwards representative of the debenture holders, in his evidence before the commission :—

" If the settlement had come to grief three years before there would have been no hope for it, because there was nothing produced," he said. " The keeping alive of the settlement has made much easier the task of keeping it going than in 1892. When I went there in 1892 there was not a penny coming out. Now the returns should double each year for years to come."

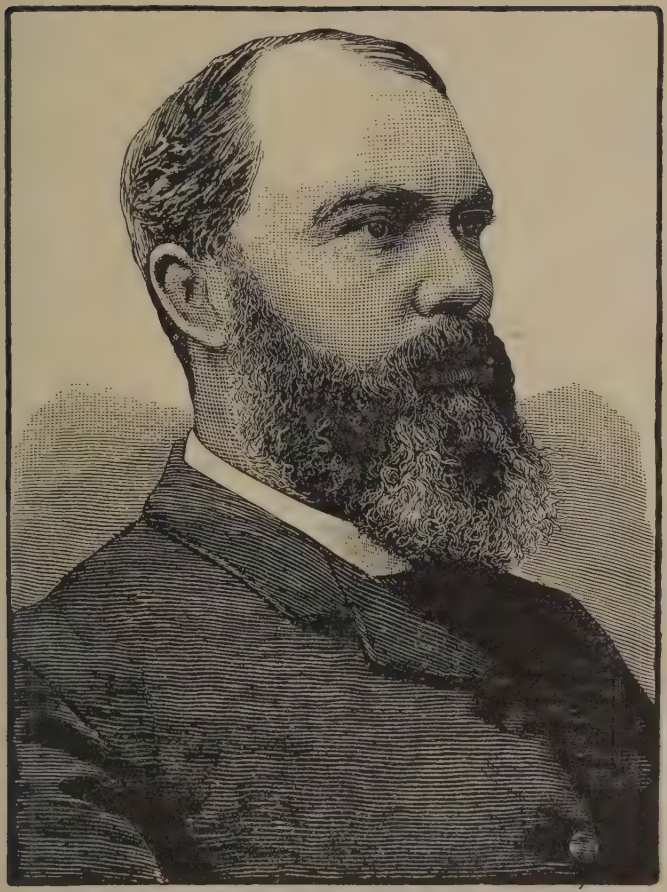
On May 12, 1896, the Victorian Government appointed a Royal Commission, comprising A. L. Tucker (chairman), S. Winter Cooke, Simon Fraser, W. D. Beazley, John Bowser, T. Kennedy, and T. Smith, to inquire into the condition and prospects of the Mildura settlement. The report was presented on September 17, 1896.

All the members of the commission were politicians—mediocrities for the most part.* All were laymen, without the slightest pretensions to expert knowledge of the irrigation, engineering and social problems they were called upon to investigate. They were inexperienced in sifting evidence, and indeed, in the legal sense, did not know what evidence was. Their report is devoid of a spark of judicial quality. Had a judge been appointed chairman, much of the so-called evidence, consisting of sensational attacks on the integrity of the Chaffeys, broadcast through the land as if they were facts established by process of law, could never have been admitted.

The irreconcilables at Mildura had stirred up radical opinion throughout Victoria against the Chaffeys, and the commission did exactly what a body of time-serving politicians may be expected to do—it permitted itself to become infected with the spirit of those who demanded George Chaffey's head upon a charger ; it even joined in the hue-and-cry. Mildura was in a state of chaos, and a scapegoat had to be found. Politicians could not be expected to fasten the blame on a large body of voters, and as George Chaffey, the founder of Mildura, chivalrously assumed full responsibility for all that had occurred, he was made the scapegoat.

George Chaffey accepted full responsibility for the conduct of the Mildura enterprise. W. B. Chaffey, who was the first witness called, at the outset expressly disclaimed any share in

* John, now Sir John, Bowser, was the only member of the Commission who made a name in politics. By a set of curious chances in 1917 he obtained a chance of forming a stop-gap ministry. A few years later an equally unexpected turn of Fortune's wheel gave him the Speakership.



MR GEORGE CHAFFEY, Founder of the Settlement.
(From a photograph by Tuttle and Co.)

Mr George Chaffey is head of the firm of Messrs Chaffey Bros. and founder of the colony of Mildura. It is therefore fitting that our readers should be presented with a portrait of the man who has called this settlement into existence and introduced a new industrial system into the southern hemisphere.

Facsimile of portrait of George Chaffey which appeared in the first issue of the *Mildura Cultivator*, May 19, 1888. The text shown in the illustration is the beginning of an article on the Founder of Mildura, which appeared immediately below the portrait.

the selection of the site, and in its subdivision, thus specifically disclaiming the title, bestowed on him by a later generation ignorant of the facts, of Founder of Mildura. The following quotations from the minutes of his evidence show this :—

Question 5. —How did you come to select this particular locality for an irrigation settlement ?

Answer : Mr. George Chaffey selected it before my arrival in the colony (*i.e.*, the State of Victoria).

Question 13. What was the object in having Blocks "A" and "B" separated, instead of being conterminous with one another or all in one block ?

Answer : That arrangement was made by Mr. George Chaffey. I was under the impression it was the desire of the Crown that it should be so.

A section of public opinion insisted that the Chaffeys were on their trial, and the commission accepted this view. No justification can be found in the terms of reference for this attitude. The result was that witnesses hostile to the Chaffeys were pampered, encouraged and actually "led" in the course of questioning, while those who gave evidence in favor (these included some of the most honored names in Australia) were cross-examined, almost brow-beaten, and treated as hostile witnesses. This conduct could have but one result. The anti-Chaffeyites became more audacious and violent in their statements ; on the other hand, it required some moral courage to give testimony in defence of the Chaffeys.

A close examination of the voluminous evidence taken by the commission—more than 5400 questions were asked—reveals that its conclusions were entirely unjustified by the facts placed before it. It rejected the evidence of experts like Stuart Murray, and accepted that of laymen, fortified by one obscure engineer whose proposals were later given a trial at Mildura, and soon abandoned as unworkable, while George Chaffey's plant, declared by the commission to be unsuitable, is still in use forty years from the date of its installation.

Worse than all, the commission grossly violated the canons of British fair play by permitting certain witnesses to make unsubstantiated slanderous charges against the Chaffeys under the cover of privilege.* Charges of corruption were made by

* There is no redress in law for statements made against honor or character before a Royal Commission.

W. McG. Paterson (the former manager of the Mildura station), and by Cureton—both dismissed employees of Chaffey Brothers Limited. When challenged to come into the open with their charges, these worthies declined to do so. Still their purpose had been served, and for the obvious reason that replies to charges of corruption can never, in the nature of things, be as sensational and arresting as the original charges, the attacks on the Chaffeys obtained a much wider currency than the defence.

Prevented from seeking legal redress by the privileged protection of witnesses before the Royal Commission, George and W. B. Chaffey were grievously wounded in honor and reputation. Thus the commission abused its powers by permitting itself to be used for the gratification of private animosities. Scarcely one of the comments in its 15,000 word report was justified by the evidence. It did not incorporate these comments into findings—its actual findings were innocuous enough,—but struck dagger-like blows at George Chaffey by a series of running comments on the general conduct of the scheme. Never in Australian history has a more inaccurate and unworthy composition been given official status. This was speedily recognized on all sides. Within a few years, when the ashes of controversy were cold, and Victoria's bitter memories of the great general financial crash were dimmed by the return of the normal condition of golden prosperity, the Mildura Commission's report was regarded as a typical product of a period of panic, of disillusionment, almost of despair.

The report had merely a transitory effect on the Chaffey reputation. In a few years the Chaffey achievements stood higher than ever in public regard,* and it is to-day regarded as a grotesque distortion of the facts placed before it. History has discredited those who dominated the Royal Commission, and has vindicated the Chaffeys. Every important conclusion in the report has been completely falsified. Time has fully

* *Official Commendation in* 1898.—The following is from page 185 of the Government Handbook of Victoria, printed by direction of J. W. Taverner, Minister of Agriculture, and dated 1st June, 1898, one year after Mr. George Chaffey had returned to California.

"It would hardly be possible to speak too highly of the manner in which the Messrs. Chaffeys' firm has given effect to their part of the agreement relating to the Mildura settlement, or the pains they have taken to instruct, guide and assist the settlers there. It has been such as to entitle them to all the assistance and support the Government can fairly and lawfully give."

avenged George Chaffey. But his position in 1896 seemed hopeless. His enemies had apparently beaten him flat to the ground. Early in the year, on the advice of his attorney (Mr. Theodore Fink), he had filed his schedule. He had no liabilities except as a shareholder, and no assets except his interest in the firm.* Stripped of everything he possessed, and the victim of a cruel persecution, which ultimately drove him back to America, he seemed a broken man.† During the

* The Chaffeys did not part with a single share in Chaffey Brothers Limited after the formation of the company. This important fact might well have been mentioned by the Royal Commission.

† The following letter which appeared in *The Herald* of July 23, 1896, throws some light on the treatment George Chaffey received from the Commission :—

THE MILDURA ROYAL COMMISSION.

To the Editor *The Herald.*

Sir,

I desire to direct public attention to some phases of the Mildura enquiry, with the hope of galvanizing into life some semblance of common British fair play into the procedure.

The commission appears to have permitted itself to become a vehicle for the gratification of all the venom and vindictiveness which has long festered in the hearts of some of the discharged servants of Chaffey Brothers Limited, and under the shelter of the wing of privilege so carefully extended by the commission, they exude venom at every pore.

Mr. George Chaffey was summoned from Mildura to appear before the commission on the 30th ulto., and was detained in Melbourne to be recalled on the 8th inst. I have good reason to believe that at the date this witness was summoned to appear, the commission were fully advised of the nature, and even details, of the sensational evidence subsequently given, wherein Chaffey Brothers, and particularly Mr. George Chaffey, are painted in such extraordinary colors, that not one trace of identity is left.

Surely the only right course was to call the Messrs. Chaffey not at the beginning or middle of the enquiry, but at the end, so that they might answer their accusers.

It may be said, that the Chaffeys can be recalled if they wish to give further evidence in refutation. True, they may, but the expense of travelling to and from Mildura is, I fear, an insuperable obstacle. It is well known that Mr. George Chaffey is absolutely ruined. The commission have also had the fact accentuated in the evidence and yet, up to the moment of writing, his travelling and hotel expenses, on a very modest scale, have been refused by the commission, which summoned him here much against his will.

I have a strong impression that his traducers have received different treatment.

I assume that he will find it necessary to revisit Melbourne in his own defence, but it may be, that by the action of the commission in hitherto refusing an allowance for expenses, he will be helpless and defenceless.

(Signed) J. F. Kilburn,

Late Secretary to Chaffey Brothers Limited.

Cureton, in the course of his evidence before the commission, gloated over the fact that the Chaffeys were ruined.

" Taking the whole family, is there anything left to them ? " he was asked. " No, I do not think so," he said. " Taking them in that sense, they are honorable men."

prolonged sittings of the Royal Commission, he was hard put for means to present his case, and actually suffered severe personal hardship.

George Chaffey's statement before the commission after reviewing the history of the agitation, continued :—

" I wish to say first that I feel my position keenly. I have been wilfully misunderstood, abused, and slandered ; and yet for fear of injuring Mildura, and in the hope of a peace which never came, I have refrained from publicly resenting it. Now I am before you, stripped of all interest in Mildura except a desire to see it prosper, and I shall be only too glad if I can assist in any way to bring about prosperity. From the reports that have appeared in the public press, a great deal has been said in respect of the probable amount of the personal capital held by my brother and myself at the time of entering into this enterprise. In regard to this I wish to state that at no period, either before or since the enterprise started, either publicly or privately have we represented ourselves as very wealthy men. From information gathered we decided to come to Victoria, believing that our successful experiences elsewhere, together with the financial backing at our command, would enable us to carry the Australian scheme through successfully. The Government of the day, I understand, took steps to ascertain what was thought of our ability and standing in California, and was satisfied, or at least I presume so, or they would not have made terms with us. What we held in California (which was disposed of when we decided to come here, or shortly afterwards) so greatly increased in value that I should have been a wealthy man to-day if we had remained there instead of the opposite. We had, in our opinion, both sufficient experience and sufficient capital for the undertaking, and we expected the land sales to recoup our outlay and to provide a further sufficient capital for the gradual extension and completion of the scheme.

" Reference has also been made to the amount of money drawn by us for services rendered to the company, and it has been stated at £17,000. Now I object to that statement, not because it is untrue, but because to the average reader, it would appear as an extravagant sum. Had it been stated that we had each received £1000 a year for eight and a half years, as managers, no objection could be taken. I would further point out that whatever our anticipated profits in the company may have been, we have not drawn a penny on our share interest in it. The law, recognizing no property in running water, it became necessary to devise some expedient for securing the water right to the purchasers of land, and

the Mildura Irrigation Company was formed on December 10, 1887. This scheme was accepted by the Government, conditionally and upon our agreeing to alter or amend the scheme should the Government deem it desirable. The organization provided against every contingency and protected the interests of all, and was designed with this leading thought and on the principle that it was desirable that those who contribute the funds should manage the expenditure. Acting on this principle the control of the pumping and distributing of the water was given to the company, who were the settlers. This is our fatal mistake. The control over the works and the distribution of water should never have left our hands until the works were completed, and the settlers educated by experience sufficiently to manage their own irrigation affairs.

" Up to 1892 the settlers themselves were well satisfied, and expressed their approval on several occasions in the most emphatic manner, and notably in a petition to Parliament dated December 13, 1890, which was signed by the Shire Council officially and the Mildura settlers in a body, including those who were most active in the water agitation. Clause 4 of this petition says, ' that all the works have been faithfully constructed with a view to the permanent irrigation of the land now occupied by us, amounting to over 12,000 acres, while they have been extended greatly beyond those boundaries, so as to provide for the efficient watering of a very large area for which the Crown grant, in terms of the agreement aforesaid, is not yet issued.' Clause 7 says : ' The right of resumption by the Government is no longer necessary as a protection to the Crown or prospective settlers against any possible laches of the Chaffey Brothers.' There was more in the petition which emphasised the assurance that the Chaffeys had fulfilled their agreement ; and is a striking contrast to some of the late violent assertions, ' That the works are not, and never were, effectually carried out.' . . . . .

" The causes which made it possible for the agitators to continue an agitation were :—

(1) The failure of the settlers to understand the documents on which the distribution of water was based, and the scope and genius of the irrigation company ;

(2) The cost of distributing water and maintenance of works was greater than they were led to expect ;

(3) Leaky channels and seepage on the adjacent lands ;

(4) The settlers had not been pressed for payment of rates, and when asked to pay refused, and used all the cries of the agitators in justification.

" The objects of the agitators were :—(1) To bring about chaos with the hope of having the Government resume ; (2) To prevent the irrigation company from performing its functions ; (3) To repudiate an honest agreement : (4) To obtain from Parliament relief that the courts would not grant.

" The causes which intensified the agitation were :—(1) Their inexperience ; (2) Their unreasonable demands ; (3) Their free water claim.

" It has been urged we were not conciliatory. The facts do not bear out this statement. On the contrary, we were ready to accept any reasonable plan of settlement, and we ourselves made many advances which the extreme party alone is responsible for rejecting.

" Up to the time of the free water craze, there was every prospect of an amicable settlement, but Harriman succeeded in creating a faction which nothing would satisfy. His connection with the Crown Law Department gave his opinion weight. Reports were freely circulated that he had drafted the indenture, and that he had been in the confidence of the Ministry of the day. He told the people that the indenture provided free water for all. Many professed to believe this, and the irrigation company was denounced as a fraud and a swindle. A certain section of the people took this as a starting point, and argued that if we would impose upon them by making them pay for water when it should have been supplied free, we were capable of anything : and from that time every advance we made was repelled with scorn and distrust. If the matter had been amicably settled we were prepared to do more than the settlers are asking of the Government to-day. The heaviest expense had been already incurred, and the future operations of the company within the present trust area would have resulted in a large profit.

" It is all very well for the people to howl at the Government, but the present state of affairs is largely due to their own actions ; and had it not been for the action of the agitators in trying to ruin the promoters for the purpose of getting the Government to resume, so that they (the settlers) should reap that profit which was the promoters' just due, there would have been no need to seek State aid. For four years the settlement has been at the mercy of succeeding factions, who have done nothing but ruin the promoters, many of the settlers, and bring Mildura to the verge of destruction."

Alfred Deakin, giving evidence before the commission, thus expressed his view of the causes of the failure of Chaffey Brothers Limited :—

" What seemed to me the chief causes of the failure are :—

" First the undue and too rapid success which the Chaffeys

obtained in settling Mildura. They told me several times, and I had every reason to believe what they said was correct, that they were completely taken by surprise at the rush there was for land at Mildura, even at the prices they asked. This rush led them to expend whatever resources they had, and to spread out the settlement in a very disadvantageous way. It pushed some of the settlers far into the Mallee, and that rendered it necessary to run the channels to them. Not only was that in itself a serious consideration, but they ran those channels, as I heard at the time—that was after I left office—day and night, with little enquiry as to the proper contour of the country or consideration as to the proper construction of the channels. They were doing this to keep up with the feverish demand there was for allotments in all quarters. The first cause of failure was overstepping and exhausting their resources because of the boom, and partly because they were holding back for a rise a number of blocks in their own hands, past which they had to take their channels.

" Having their capital exhausted, they found themselves faced with a new crisis—that was the civil war between the settlers and themselves, over the demand for free water. When I visited Mildura at that time, I found the settlers had organized themselves into a body, and waited on everybody coming to Mildura, warning them not to buy ; so they practically stopped the sale of allotments. That stopped the income of the Chaffeys. After this some settlers banded together to decline to continue their payments to the Chaffeys ; consequently their resources were cut off from every side. They were faced with the bitterest attacks. At the time their reputation was injured, and yet the settlement was sprawling over many miles of country. In consequence they were driven in their desperation into financing, hoping to reach some settlement with the disaffected persons. They went on financing until they were financed out of existence. Of course the general condition of Victoria and the fall in the price of all agricultural prices affected them too. All these causes coming together culminated and brought about the downfall of the Chaffeys."*

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* Deakin's evidence showed that the failure of the private enterprise project at Mildura was but a duplication of the fate of the State's schemes. The State schemes had not succeeded because the land in the country districts was held in too large areas by men who declined to irrigate or to sell except at prohibitive prices, he said.

Mooroopna, in the Goulburn Valley, was a brilliant exception from the list of State failures. The price of the land and the disinclination of farmers to step out of old ruts had stopped the progress of State schemes.

Like Mildura, most of the State projects have outlived the depression which followed the financial crash of the early nineties.

Stuart Murray's version of the cause of failure was :—

" The falling off in the sale of lands, due to the financial crisis that overtook Australia, but was most intense in Victoria, was the initial causes of the troubles that overtook the settlement. This falling off in sales was intensified by the action of a section of the settlers themselves, opposed to the Chaffeys and their management. It was this cessation of sales stopping the inflow of current cash which caused the firm's work to suffer for want of proper maintenance, and left them in such a straitened financial position that they were unable to make good proved defects in the plant and channels, as they from time to time appeared, and so brought about the existing difficulties. The project failed through the failure of current income."

J. F. Levien thus summarised the position as he saw it :—

" Excessive financing was not the cause of the failure of the company. The chief cause was the agitation for free water, and the charges of dishonesty and mismanagement against the Chaffeys, which had the effect of stopping land sales. Hundreds of first-class settlers were prevented from coming by this unfortunate agitation. Another cause was that in anticipation of those land sales we had incurred enormous obligations in extending channels and ordering machinery to meet the large demand. Our land income having stopped, we approached London to meet our obligations, and had practically secured £100,000, when the two insurance companies that arranged for the loan reconstructed. The underwriters withdrew, and we failed to get the money.

" A third cause, and a very serious one, was the delay in legislation in settling the water agitation when the agitators had practically ceased to exist, and the settlers as a whole had agreed with us on legislation. We could not finance until this important question was settled."

The Royal Commission finding was in strong contrast :—

" Foremost amongst the causes of failure must be placed the grave errors made in laying out the settlement, and in making provision for the supply of water for irrigation purposes. The second is the non-fulfilment of the obligations undertaken in the agreement, whereby the reasonable expectations of settlers in Mildura have been disappointed ; and thirdly, the hopeless financial management of the company."

A close analysis of the report discloses the incredible fact that in not a single instance is evidence favorable to the Chaffeys alluded to. To peruse the report and not the evidence

is to imagine that the witnesses unanimously condemned the promoters. We shall see that the conclusions of the commission were in direct opposition to those of the influential body of experts who testified before it.

The report was distinguished by an abysmal ignorance of the pioneering significance of Mildura. That it gave the Chaffeys no credit for their achievement in transforming a "carrion-polluted wilderness" into one of Victoria's most productive provinces, in multiplying a thousandfold the value of the land comprising this "hissing Sahara of scorching winds and driving red sand," is shown by the following comment :—

" It is surprising that so large a measure of success has been achieved by the settlers at Mildura under such adverse circumstances and unsatisfactory management. These favorable results, as far as they have been secured, are chiefly owing to the indomitable perseverance and energy shown by the very superior class of persons who have been induced to join the Mildura Settlement."

The commission cannot be too strongly condemned for its contemptuous indifference to the evidence tendered by such men as Deakin and Stuart Murray, distinguished citizens of untarnished honor as well as public servants of extraordinary ability. The men it took notice of were, for the most part, irresponsible nonentities, or factious disturbers of Mildura's peace.

The 15,000 words report began by making a series of comparisons between irrigation in California and Mildura, which revealed startling ignorance of, and made no allowance for, differences in physical conditions. It was pointed out, as if George Chaffey were to blame, that Ontario was a gravitation and Mildura a pumping scheme ; that the water was conveyed in pipes to Ontario, while at Mildura open channels were used. The reason for the difference has already been fully explained. Ontario is located at the foot of the Sierra Madres, which rise 10,000 feet ; Mildura is situated on almost flat land, rising up to one hundred feet above the river, which supplies it with water. The slope of Mildura land is so gradual that very large pipes would have had to be used to carry water to the settlement, and the cost of these would have been prohibitive.

The commission omitted to mention that at Riverside, where conditions more closely resembled those at Mildura,

unlined channels running through sandy soil had proved efficient.*

The statement that "A very large proportion of the water is lost at Mildura after being lifted to the different levels," though probably made in good faith, has proved to be inaccurate. When the agitation died down after the expulsion of the Chaffeys, the complaints of leakage and seepage gradually ceased. Notwithstanding the wholesale condemnation of the channels, they are in use to-day in the same unlined condition, for the most part, as during the Chaffey regime, and giving efficient service. The seepage trouble, of which so much was made, was found to be due not to defective channels, but to over-watering and defective drainage. Once Mildura learned the art of using water the seepage trouble disappeared for ever.

The commission's rash conclusion that the Mildura channels were "inefficient, incomplete and extravagant in the greatest degree," was totally unjustified by the expert evidence given before it, and absolutely falsified by the subsequent history of Mildura. In that statement alone it revealed incompetence and partizanship "in the greatest degree."

Its conclusions on all fundamental issues were equally false. But while they can be readily disproved to-day in the light of 30 years' experience, they ruined George Chaffey's reputation in Australia in 1896.

In the face of Deakin's evidence of what he saw in America, the commission had the temerity to declare that it was "absolutely necessary" to line the channels. The chief engineer of Water Supply (Stuart Murray), foremost among Australian irrigation engineers, said no man in his senses would attempt to line all the channels, because many would do without any lining at all if properly maintained. He had known channels in other parts of Victoria carried through the same soil to become water-tight. One section of the natural channel in the Goulburn system was through pure sand. In the Echuca district there were channels through pure sandy soil, but they silted up and became impervious. The bad ground at Mildura would take up after a time, and cease to lose much water. The

* On this point Alfred Deakin said in evidence: "When we visited Riverside, the show colony of California, the channels were more imperfect than any channels I have seen at Mildura. The losses of water were great and the complaints continuous. I hardly saw a cemented channel in America. At Fresno I saw channels taken through soil quite as sandy as the soil of Mildura."

first channels of the Echuca and Waranga Trusts at numerous points, especially a few miles north of Lake Cooper, were, for many chains, through pure sand, not lined nor protected. The channel from the Murray to the Kow Swamp, constructed under Stuart Murray's supervision, ran for the first four miles through pure sand, and the embankment on the Wartook Reservoir, holding thirty feet of water, was pure fine sand. The idea of lining the channels throughout was out of the question. It was too costly.*

W. F. Salmon, a land valuer, with some considerable experience of irrigation works, told the commission that when he saw the channels in 1892 he thought when the water had formed a skin on them, and they were well consolidated, they would hold water fairly well, but the crayfish had upset all calculations. Seeing that all irrigation channels were made that way, with the exception of some in India and Europe, he considered a properly constructed earthen channel a compliance with the indenture. Some of the channels were already practically water-proof. There was little leakage in 1892.

The chairman, by way of discounting the crayfish theory, tried to suggest that the settlers had abandoned it. Salmon said he could not understand them abandoning it. As far as he could see there was a good deal in it. It could be seen that they had burrowed in every direction, and anyone connected with the pastoral industry knew the damage they caused. Stuart Murray said that but for the crayfish the channels through pure rich loam would have held water well. On the Goulburn he had followed crayfish one hundred feet from the channel. Alfred Deakin testified that many of the Mildura channels were in far better condition than those at Riverside.

The commission grudgingly admitted that the machinery was of good design and effectiveness "for some purposes." "George Chaffey stands alone in his statement that the machinery is of the best and most effective kind for the work required at Mildura," it added.†

* This statement was corroborated by Henry Cudmore, an old resident of the district, who said the channels were effective, but they cracked when left dry, and so when re-filled the leakage began again. If they were kept moist there would be less seepage, he said.

† This was a reference to evidence declaring that centrifugal pumps were unsuited to the work required at Mildura, and extremely expensive to operate. George Chaffey gave the following reasons for his choice of centrifugal pumps :

They were capable of delivering sandy, dirty or gritty water without injury

Again, the commission omitted all reference to the abundant evidence regarding the suitability of the plant, and accepted the views of laymen, and one or two engineers inexperienced in irrigation. Stuart Murray's evidence emphasized that the defects were of "maintenance rather than design or construction." He declared that the pumping machinery would be fairly described as best adapted for the purpose, and was capable of irrigating 30,000 acres.* In his 1893 report on settlers' complaints, Stuart Murray went into the question of the plant very thoroughly, but the commission ignored his findings, which were based on working tests and exhaustive examinations.

The Secretary of the Irrigation Trust (G. H. Tolley), a discharged servant of the Chaffeys, brought forward a costly scheme for throwing out George Chaffey's pumps and installing new pumps at Red Cliffs, to be financed by a loan from the Government.† Stuart Murray advised that the Chaffey system be retained. He pointed out that other schemes involved radically altering the alignment and levels of some of the channels,‡ thus interfering with the arrangement of the allotments. This last point had been completely overlooked. After the report of the Royal Commission was issued, certain modifications of the Chaffey scheme were tried, but soon abandoned, and George Chaffey's pumps at Psyche Bend and the Billabong are still in use, and the water is flowing along the original channel system. J. T. Noble Anderson, the engineer engaged by the Trust to report on the machinery, admitted in evidence that his opinion of it was favorable. Percival G. D. Lavater, Mildura Shire Engineer, said Tolley's figures showed

* Approximately the area commanded by the channels.

† Tolley's scheme involved scrapping of the machinery, worth about £40,000. He estimated the total cost to be £62,224. His forecast that "sooner or later the Chaffey machinery would fall to pieces," has not yet been verified. He admitted that the existing plant and channels, if in good working order, would supply all the water required.

‡ Tolley admitted that 10 miles of new channels would have had to be constructed.

to the plant. They were easily fixed, most durable and capable of working long periods without stopping, and without repairs if kept in good order. Their initial cost was comparatively low. Their great disadvantage was relatively high cost of work. Reciprocating pumps recommended by Tolley, he pointed out, were expensive to maintain when dealing with gritty water, and their first cost was very high. Their sole advantage was economical working.

conclusively that the channels rather than the pumping plant were at fault.

Dealing with the failure to complete the Agricultural College, the commission stated :—

" Under the adverse circumstances which seem to have surrounded the settlement, the promoters might perhaps have been excused from proceeding with the erection of the college at present, yet surely some one should have seen that the lands reserved for its future endowment were of a fair average quality, representative of the lands of the settlement, and commanded by the irrigation channels."

Examining the endowment in detail, it found that 900 of the 1400 acres were not fit for the purpose, and worth but five shillings an acre. This conclusion was in direct opposition to the statement of Stuart Murray, that "*the area set apart as college endowment is much in excess of that agreed upon. Taken as a whole, it appears to be a fair sample of the average lands included in the concession.*"*

Earlier in its report, the commission had made a grievance of the statement in the Red Book, that the Chaffey colonies were established by Acts of Parliament, and regulated by the respective State Governments. Later on it admitted that these statements were justified by the indenture. It then complained that no supervision or control was attempted by the Victorian Government, and that the sole condition insisted on by the Water Supply Department was that relating to expenditure on the concession. The commission complained that the indenture "which appeared so stringent and binding has been set aside by Acts of Parliament."† This, of course, could only be done at the instance of the Government.

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* Report on settlers' complaints by Stuart Murray, 1893.

† Stuart Murray made the position clear when he wrote, in 1890 :—

" The control exercised by this department over the Mildura Irrigation Colony is limited to its being satisfied that the condition specified in the agreement between the Government and the Chaffeys relating to the amount of expenditure upon improvements is fully complied with."

Stuart Murray pointed out to the commission that the Chaffeys came out to Australia as experts to teach irrigation colonization, and would rightly have resented interference by others with less knowledge. If the Government had interfered it would have had to take the responsibility for any failure. The idea of complete Government surveillance was an *ex post facto* idea, which got into certain people's minds after the event.

Stuart Murray was right. Behind the cry of Government responsibility was the idea that the Government might be induced to relieve the settlers of their financial responsibility, as was done in the case of the Irrigation Trusts.

The commission complained that Chaffey Brothers had used the settlers' mortgages as security for advances from financial institutions when funds to carry on the operations of the company were required. This was a recognized form of financing. The mortgages were legitimate securities, and Chaffey Brothers merely adopted the universal practice of borrowing against money due to them. To make assurance doubly sure, legal advice was taken before the mortgages were hypothecated. Evidence on this point was given by, among others, the general manager of the Bank of Victoria (J. D. Law). This is an extract :—

The Chairman : Is not this an unusual way of doing business in selling land ?—No. It is not unusual. In the ordinary business of buying and selling land it is frequent where the purchaser leaves a certain amount unpaid to give him a title in his own name, and take a mortgage back. It is the ordinary legal way of settling the thing.

S. Winter Cooke : Is the security that Chaffey Brothers give (the settlers' mortgages) an ordinary security ; do people generally borrow on security of that kind ?—It is not at all an uncommon kind of security.

This evidence was not adverted to in the report, nor was it mentioned that settlers gave evidence that the Chaffeys, though owed a large amount of money, took no harsh measures against the defaulters. No one was sold up at Mildura under the Chaffey regime.

The commission castigated the company for "reckless financing." The sole specific example quoted was that of the debenture loans. The first issue of £100,000 cost £18,240.* The expenses of the second issue, which realized only £14,900, were £10,156.† This issue was wrecked by the financial difficulties of Anglo-Australian Banks following the great crisis of 1893 in Melbourne. The flotation costs would have been little higher had the full £100,000 been subscribed.

The chairman of Chaffey Brothers Limited (J. F. Levien) had pointed out that the total net charge for interest was

* The expenditure on the first issue was :—Discount at 3 per cent., £3000 ; underwriting commission, etc., £12,514 ; rebates on payments in advance, £297 ; advertising and all other charges, £2428. A large proportion of the cost of the second issue went in commissions.

† The chief items were :—Printing and stationery, £756 ; advertising, £3581 ; postage, £637 ; commission and agency, £3394 ; sundries, £29.

£8743 a year, less than four per cent. on the company's average indebtedness, £221,653. Levien contended the liquidators' own figures showed that after making provision for interest, works depreciation, bad debts, management, etc.—£82,072—sufficient assets remained to pay all the company's debts, restore shareholders' capital and leave a surplus of £125,460. J. F. McCarron, who gave evidence on behalf of the liquidators, declined to accept these figures, and adhered to the statement in the liquidators' report, that the principal cause of failure was a dead weight of interest.*

George Chaffey's evidence has not been traversed in full in the preceding pages, because it was desired to demonstrate without the testimony of the founder of Mildura, that the commission was a hopelessly biassed tribunal. For similar reasons W. B. Chaffey's evidence has not been examined. It is sufficient to say of George Chaffey's evidence that he faced the wolf-pack with high courage and quiet dignity. Invited to do so, he resolutely declined to apologize for his scheme, but defended it at every point of attack. He declared that he was proud of what he had done at Mildura (although he admitted those mistakes that cannot be wholly eliminated from human activities), and would do it over again if he had the chance. Despairing of obtaining a fair hearing, at a time when the whole issue was clouded by prejudice and violent partizanship, he appealed to the future to vindicate Mildura and himself.

The Royal Commission's report completely ruined George Chaffey's Australian prospects. With the liquidation of the company the Chaffey interests in Mildura and Renmark had reverted to the representatives of the debenture holders. George Chaffey had no assets—even his wife's slender fortune was absorbed in the catastrophe. The Royal Commission made it impossible for him to hope for a career in Australia. Worse than all were the imputations on his personal honour. He found himself after having spent ten of the best years of his life on the Murray scheme—"living under his hat for most of the time," as he put it to the Commission—absolutely without means, and, as far as the general public, which was not in a

* The liquidators had severely criticized Levien's management, on the grounds of alleged recklessness of method and protection of his own interests at the expense of other creditors.

position to know the full facts, was concerned, discredited by the apparent failure of the great enterprise he had undertaken.

Nearing the age of fifty, he, a man who had lived but to work for the well-being and benefit of others, was in the unenviable position of having to start life afresh, handicapped during the years to come, so it seemed to him, by the dead weight of the Mildura Royal Commission's damning report.

An ordinary man would have been overcome by the magnitude of the misfortune, but George Chaffey was made of sterner stuff. As he had refused to recognize defeat at Mildura, so, fortified by the knowledge that Victoria would in years to come realize what it owed to him, and think of him with gratitude and esteem, he felt himself still the master of his fate. He was always one to—

> " Breast the blows of circumstance
> And grapple with his evil star."

So when his enemies rejoiced to see him leave Australia, apparently a defeated and broken man, they did not dream he was going to the greatest triumph of his career, and that in him the Colorado Desert was to meet its conqueror.

Before the circumstances of George Chaffey's return to America are related, a chapter will be devoted to the Renmark colony, which has heretofore had but incidental reference.

CHAPTER XVIII

RENMARK

THE second Chaffey Irrigation Colony in Australia lies in the State of South Australia, one hundred and forty miles lower down the river than Mildura. As we have seen, it came into being as the result of Victorian Parliamentary opposition to the Mildura project.

Seeing a probability, when the Mildura concession was thrown open to public tender that their claim would be jumped by speculators, Chaffey Brothers eagerly accepted an invitation from the South Australian Government to consider the establishment of an irrigation colony in that State. Negotiations were carried on during the debate in the Victorian Parliament on the *Waterworks Construction Encouragement Bill* in the last days of the 1886 Session. That Bill was passed on December 15, 1886, with the provision that tenders for the Mildura concession should be invited during the ensuing two months.

In the meantime, George and W. B. Chaffey were inspecting the South Australian portion of the Murray Valley, determined to abandon the Mildura project if any outside tender were received. The most suitable area of South Australian Crown Land for their purpose was found to be that comprising the Bookmark and Chowilla stations. The situation was more remote than that of the Victorian concession, and the fall of the land from the river was less decided. The soil was richer and the height above summer level considerably less than at Mildura. The South Australian Government, eager to see a Chaffey enterprise established in the State, offered better terms than Victoria.

Possessing none of the spectacular advantages of Victoria, and with a far smaller population, South Australia was not nearly so well known abroad as its opulent sister State, and an irrigation colony established at a place nearly two hundred miles from Adelaide, the Capital, could not be expected to, and did not, attract as many settlers as Mildura.

On February 14, 1887, before the two months period for calling tenders for the Mildura concession had elapsed, George and W. B. Chaffey signed an agreement with the South Australian Commissioner of Crown Lands (J. H. Howe), for the establishment of an irrigation colony on the Bookmark and Chowilla runs, afterwards named Renmark. This Agreement marked the birth of practical irrigation in South Australia.*

The South Australian Agreement was based on that made between George Chaffey and Deakin on October 21, of the previous year, but its terms were far more liberal to the promoters. It required an expenditure of four pounds an acre on the first 50,000 acres, against five pounds an acre required to

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* The birth of practical irrigation in South Australia dates from the advent of the Chaffey Brothers at Renmark in 1887. Previously a number of our progressive settlers had practised the art of artificial watering, but not on an extensive or properly established system. . . . .

Those eminent irrigationists were sanguine as to the great future possibilities to be derived from the artificial application of water as the prime factor in successful cultivation, and the closer settlement movement of our semi-arid country along the banks of the Murray wherever the water supply was sufficient to meet such requirements.

As in every great movement, initial mistakes were made, but the optimism of those promoters of irrigation never flagged, despite the army of pessimists they had to contend with. . . . .

Renmark is situated on the Murray River, 351 miles from the mouth by river, 174 miles above Morgan, and 265 miles below the junction of the Darling River with the Murray at Wentworth. By land Renmark is 75 miles from Morgan, the nearest railway terminus, and 179 miles by rail and road from Adelaide. Renmark was founded under the Chaffey Brothers Irrigation Works Act of 1887. Since 1897 the irrigation works have been administered by the Renmark Irrigation Trust No. 1, a body elected periodically from among themselves by the ratepayers of the settlement. The original grant of land to Chaffey Brothers comprised 250,000 acres, and extended to the New South Wales border. In 1902 the area actually controlled by the Irrigation Trust was reduced to 13,348 acres, but in addition to this 15,652 acres have been dedicated to the Trust for commonage purposes. Renmark—now recognized, together with the sister settlement of Mildura, as one of the most successful irrigation settlements in the world—is the outcome of the enterprise and energy of Messrs. Chaffey Brothers. The early settlers paid from £20 to £25 an acre for uncleared land with attached water rights, believing that the efficiency of the pumping services was guaranteed by the Government. The failure of the promoters left works in a very unsatisfactory state. In 1895 and 1900 loans of £3000 and £16,000, respectively, were granted by the Government to enable the Trust to put the machinery and channels into a state of efficiency. . .

Renmark has now about 5000 acres of irrigated land, which previous to 1887 would not carry more than 2000 sheep during the most favorable season. Water is here pumped from the river at a cost of 1d. (two cents) per 19,000 gallons, and is delivered on the irrigation level through a second pump at a cost not exceeding a penny for 9000 gallons. The annual average irrigation requirements along the river settlements is from 20 to 30 acre inches per acre. The cost of pumping the necessary water for irrigation purposes on the majority of the settlements with the higher irrigation lands averages from 30/– to 40 – per acre per annum. –*Irrigation and Reclamation*, by S. McIntosh, Director of Irrigation in South Australia (Government Printer, Adelaide).

be spent before the Chaffeys acquired a title to the whole of the 50,000 acres comprised in Block "A" of Mildura, a difference of £50,000 in favour of the promoters.

Another important difference was the provision in the South Australian Indenture that until grants had been issued for 125.000 acres, no grant should issue for any area not commanded by the channel system. This provision prevented the Renmark Settlement from sprawling over an unduly large area as was the case at Mildura. In practically every other respect the Renmark and Mildura Indentures were identical. Chaffey Brothers were required to expend on approved substantial and permanent improvements and works £300,000 within twenty years in the following instalments :—

During the first five years	.. £35,000
Second five years	.. 140,000
Third five years	.. 75,000
Fourth five years	.. 50,000

The actual expenses incurred by the Chaffeys in securing settlement on the land were included within the term of substantial and permanent improvements.

The Government undertook to set apart 250,000 acres on the Murray at Chowilla and Bookmark, divided into two blocks, for irrigation and subdivision. It bound itself to issue to Chaffey Brothers a license to divert water from the Murray in quantities and under conditions to be afterwards determined, the Chaffeys to covenant that the water so to be obtained should be distributed for irrigation.

The scene of the Chaffeys' South Australian experiment was an arid uninhabited waste closely resembling the Mildura Run in its unprepossessing appearance and apparently hopeless future. That generation of South Australians did not imagine that it could ever be made suitable for closer settlement, and there was general surprise and an ominous shaking of heads when the Adelaide press announced that the Bookmark run had been chosen by Chaffey Brothers for irrigation. There was no doubt about the quality of the land, but the whole region had heretofore been at the mercy of a rainfall as scanty and capricious as that of the Victorian Mallee. It was a region cursed by drought and sand storm—the last place one would imagine likely to become a centre of production and industry. Its general appearance at first blush was repellant

and depressing, reminding one of lines written by A. H. Adams :

" The land lies desolate and stripped,
Across its waste has thinly strayed
A tattered host of eucalypt
From whose gaunt uniform is made
A ragged penury of shade.

The wide sun stares without a cloud
Whipped by his glances truculent
The earth lies quivering and cowed. . . . "

The Chaffey plans at Renmark were modified in consequence of the absence of tenders for the Mildura concession. In 1887 they took possession of the Mildura Run in circumstances already fully related. They then decided to concentrate on Mildura because of the greater probability of attracting settlers from abroad to the better-known and highly-developed State of Victoria. Consequently, although the establishment of the South Australian Irrigation Colony proceeded almost simultaneously with that in the neighbouring State, it was not pushed with the same vigor, nor did it obtain the same publicity at home and abroad.

The South Australian Parliament in 1887 readily passed an Act ratifying the Agreement, and in 1888 the Government issued a license for the occupation by Chaffey Brothers of 30,000 acres of the Bookmark and Chowilla Runs, which were set apart for irrigation in accordance with the Agreement.

The business organization controlling Renmark was identical with that in Victoria. In July 1888, the Chaffeys transferred the Renmark concession to a company formed for the purpose : Chaffey Brothers (Renmark) Limited. The concession was valued by George and W. B. Chaffey at £230,000, represented wholly by shares, the largest portion paid up to £10, while others were issued paid up to one pound and five pounds. On January 7, 1889, the Renmark Irrigation Company was organized. This was a duplicate of the Mildura Irrigation Company, designed like it to secure a perpetual water right to each acre of land sold at Renmark, and to control the supply and distribution of the water to the colony. In 1893 the Renmark Irrigation Company was succeeded by the Renmark Irrigation Trust No. 1, which has since administered the affairs of the settlement. The Trust franchise provides for one vote for each acre of land assessed for water rates.

George Chaffey found that the irrigation of Renmark presented fewer difficulties than those encountered at Mildura. The water was lifted by powerful pumps into a natural creek reservoir, and thence distributed into the main channel, thirty-four feet above summer level. The highest channel was on the sixty foot level.* The town was laid out on the banks of the Murray opposite *Paringa*, George Chaffey's home for two years, and was named Renmark. Soon settlers began to come in. Many of these represented the overflow from Mildura. Keen buyers, disappointed in their expectation of securing the choicest blocks at Mildura, travelled down the river and in many cases bought at Renmark.†

George Chaffey's youngest brother, Charles F. Chaffey, arrived from California in 1888 to take charge of the Renmark Colony. Mrs. Chaffey and her young family accompanied him.‡ Mr. and Mrs. Chaffey remained at Renmark for some years after the liquidation of Chaffey Brothers Limited, sharing the hardships and disappointments of the early years of the isolated settlement. Their true pioneering spirit won them the affection of the whole community, and their memory is still cherished at Renmark. Four of their five children were born in Australia. C. F. Chaffey left Australia to join the public service of British Columbia, and was well-known in the Province as land inspector and valuator for the irrigation areas of Oliver and Kelowna. He and Mrs. Chaffey now reside in Vancouver. Their three sons served in the Great War with the Canadian Forces. Russell and Francis, the two Australian-born, were killed on the Western Front.

Renmark, though originally intended to remain a prohibition settlement, is notable for having established the first community hotel in the British Empire. As was the case at Mildura, liquor bars were excluded when the settlement was founded, but illicit drink selling became so troublesome that in 1896, Parliamentary action was taken to permit liquor to be sold under license as in other parts of the States. This was contingent on a petition signed by a majority of residents

* At Mildura the water had to be raised to a maximum of ninety feet.

† The land was offered on the same terms and conditions as at Mildura, horticultural land ranging from £20 an acre, township lots from £20 each, and villa lots of two and a half acres at from £100 each.

‡ See note at end of chapter.

asking for a license, setting out the purposes to which the profits from the sale of liquor were to be applied, and nominating a committee of management.

The hotel was established under the management of a committee elected by adult franchise, and this system has prevailed to the present day. Profits from the sale of liquor are devoted wholly to public purposes. In other respects the hotel is subject to the provisions of the ordinary licensing law of the State of South Australia. Thus it is not a Gothenburg Hotel, though often spoken of as such. It differs from Gothenburg principles in that the management possesses no special powers for the regulation of the actual sale of liquor.

The absence of the element of private gain from the sale of liquor in the Renmark community has proved most beneficial. It is strange to learn that prominent Rechabites have held the position of chairman of the committee. The community hotel is the only licensed house in the district, and it is something more than a "saloon" in that it takes pride in the excellent accommodation it provides for the travelling public. It was established with no capital, except the licence. In 1926, in addition to owning property valued at above £40,000, it had distributed an equivalent sum for local public purposes.

An interesting reference to Renmark is made by that celebrated Irishman, Michael Davitt, in his book on Australia :—

"Renmark is not one of the labor villages. It is more of a capitalistic venture,"* he writes. "The firm of Chaffey Brothers has virtually created what seemed a mere Murray scrub into what in comparison with the surroundings is a virtual little Paradise.

"It is a small town of some two or three hundred dwellings, on a bend of the Murray. The houses are almost all those of fruit growers, who have their various sized orchards of oranges, lemons, olives, or vines, neatly fenced in, and looking the very picture of

* The South Australia labor villages were settlements established on the Murray in 1894, recruited mainly from the ranks of the then unemployed; unfortunately human nature was not sufficiently far advanced for the original scheme, which was on a supposed communistic basis. As a result, a number of the weaker settlements, including New Era, Gillen, New Residence, Holder, and Pyap, were gradually eliminated. In 1899, after the exhaustive inquiry by a Royal Commission, the system was abolished, and the remaining settlers permitted to occupy independent leases, while the water was supplied on a co-operative basis, as at Renmark and elsewhere.

idyllic industry. In fact, it would be difficult to discover a more inviting place with its wealth of sunshine and warm climate, its cosy cottages and fruit gardens, and the broad river sweeping by in graceful curvature, and the primeval forest of eucalypti and pine all round—the kind of arcadian retreat one would imagine awaiting a settlement of unemployed poets.

"Six years previously Renmark was a part of the uncleared bush. Irrigation has produced the industrial miracle which is found there now. Without water the soil grows nothing but the everlasting gum, sheoak, and mallee scrub. How these trees manage to live in so dry a climate is one of the many wonders which the European learns from a visit to these anomalous antipodes.

"A powerful pumping plant, which cost over £20,000, lifts the water from the river into a distributing reservoir. A main irrigation channel, about five miles long, sends the fluid into some fifty miles of by-channels, and in this way each orchard or garden gets the necessary quantity of moisture for a consideration. I was told there were five hundred people employed in this fruit-growing industry. Upwards of 5000 acres of scrub had been reclaimed, cultivated and planted within the six years' existence of the village.

"So rapid is the growth of the fruit trees in this soil, when irrigated, that orchards were seen laden with lemon, orange and olive trees covered with their produce. Orange and lemon gardens are protected from winds by hedges of eucalypti. These hedges grow in about three years to a height of 20 feet.

"Very little of this produce has yet come to the European market. Australia consumed her own fruit so far. It is not yet grown in large enough quantities to require external patronage. When it is, and when the art of successful fruit packing keeps pace with the development of this delightful industry, Renmark raisins, oranges, etc., will be heard of at Covent Garden.

"The firm of Chaffey Brothers, who developed this district, came to financial grief over the enterprise, and the Government of the Colony, recognizing the importance of the fruit-growing industry, came to the assistance of the venture with a loan of public money. This wise and timely help will probably save the little Arcadia, and give its chief occupation a brighter prospect of profitable existence."*

Renmark passed through the same vicissitudes as Mildura, but, though the back-wash of the anti-Chaffey agitation in the

* *Life and Progress in Australasia*, by Michael Davitt, M.P. (Methuen & Co., London, 1898.)

sister colony was felt at the smaller settlement, the bitterness and malignity of the free water campaign were absent. The Renmark settlers, for the most part, recognized that they must pay water rates, and adopted the course which Alfred Deakin unsuccessfully urged on Mildura at the historic meeting of June 28, 1892. In 1893 the Renmark Irrigation Trust entered into a contract with the promoters by which Chaffey Brothers undertook to work the pumps and distribute the water on behalf of the Trust, at fifteen shillings per acre per year. This arrangement, which would have solved many of Mildura's problems, worked successfully. Renmark thus was spared the long, weary years of contention, which brought Mildura to the verge of destruction.

The condition in the South Australian Agreement which prevented the Government from issuing Crown grants until the land proposed to be granted was commanded by a channel, had the effect of keeping the Renmark settlement compact. This reduced pumping costs to a minimum. Had the Mildura Indenture contained a similar clause, that settlement could not have stretched so far out into the Mallee. If George Chaffey's offer to enter into a pumping contract with the Mildura Irrigation Company had been accepted, the melancholy events of the later years of the Chaffey regime might have been averted.

The Mildura Royal Commission, comparing the Victorian and South Australian settlements, recorded that there had been no complaints at Renmark regarding lack of water, seepage or salt land.

Renmark throughout the great financial crisis of the early nineties took a saner view of its difficulties than did Mildura, and made the best of the situation. The collapse of Chaffey Brothers Limited, in December 1895, involved the loss of the South Australia as well as of the Victoria concession, but at Renmark, as in Mildura, the indomitable courage of George Chaffey, his refusal to accept defeat, postponed the dissolution of Chaffey Brothers Limited, until the infant settlement, founded in a wilderness, was able to stand without the support of the promoters. Renmark has ever since been regarded by South Australians as an object lesson in successful colonization and in the utilization of Australia's arid lands.

In 1920 the then South Australian Minister for Irrigation (the late J. C. Bice) announced at Renmark that the Ral Ral Soldier Settlement project would be called the Chaffey Irrigation Settlement, in honour of Chaffey Brothers. "The wonderful work of the Chaffey Brothers in laying the foundation of irrigation along the Murray was appreciated by all, and the least they could do was to honor those great men," he said.*

During the Great War, six hundred Renmark men out of a total population of three thousand enlisted in the Australian Imperial Forces. This probably constitutes a record for any community in the British Empire.

H. S. Taylor, editor of *The Murray Pioneer*, one of the best-known country papers in Australia, and himself a masterly writer on our irrigation problems, generously contributed the following additional matter relating to Renmark :—

There is little that I can add to Mr. Alexander's admirable sketch of Renmark's history and Mrs. Chaffey's interesting reminiscences.† But many changes have taken place in these parts since Mr. and Mrs. Chaffey left Renmark.

The blacks who entertained them with corroborees, and all their descendants, have gone beyond recall, submerged in the general fate that has overtaken their once free and happy race. In hundreds of miles along the river's course the only relics of the aborigines are the scars on the gum tree boles from which their bark canoes were cut, or, back from the river, the burned remains of their "ovens," the heaped mussel-shell of their kitchen middens, an occasional nardoo grinding stone, and fragments of chipped flint.

Of the men who, under the Messrs. Chaffey, pioneered the settlement, a large number, or their descendants, are still in Renmark. Mr. J. M. Smith is still an honored resident of the place, and one of the girls who accompanied Mrs. Chaffey from Adelaide is the chatelaine of one of Renmark's most picturesque garden homesteads. The "General" (Mr. C. H. Hollingdrake) is dead, but his son is with us ; Canon (now Archdeacon) Bussell is still at times a loved and honored visitor, and the young engineer who went to the West (Mr. Hugh Oldham), and who surveyed the town of Renmark for the Chaffeys, returned and was the resident engineer under whom the

* Right through the irrigation areas on this part of the river, great satisfaction has been expressed at the announcement that the Ral Ral scheme is to be named Chaffey, after the parents of irrigation in Australia.—*The Murray Pioneer*, Renmark, February 27, 1920.

† See note at end of chapter.

Chaffey settlement at Ral Ral was laid out a few years ago. Though not living in Renmark, he is still employed in practice on the river in South Australia.

One minor correction in Mrs. Chaffey's reminiscences may be made. *The Renmark Pioneer* was founded, in 1892, by A. P. Corrie (now in Queensland), who issued it as a chromographed and cyclostyled manuscript, very cleverly illustrated by the Methodist Minister (Rev. J. S. Jerkins), then stationed in Renmark. It was brought out as a properly printed paper by Sydney Browne (who afterwards returned to England), and was purchased from him by the late C. J. Ashwell, of whom Mrs. Chaffey writes.

In the light of later experience, the statement that the Renmark soil is richer than that of Mildura needs correction. It is of a totally different type from the Mildura land. The greater portion of the original settlement is situated on an alluvial flat ; but though parts of this are very rich, in the bulk it has proved decidedly less productive than the general run of soils in the Mildura area. Generally speaking, it may be said that, except for the reclaimed swamp areas near the Murray mouth, the river soils increase in richness as one follows the course of the stream upwards.

Salt and seepage have never developed in Renmark proper to the same extent as at Mildura, but the settlement has been by no means exempt from them, and they have given great trouble in the State irrigation areas below Renmark.

Water costs have increased considerably since Mr. McIntosh's quoted article was written. In the Government areas there is a uniform charge of three pounds per acre for four irrigations (computed as twenty-four inches), but this sum does not cover the cost, the balance being made a charge on the State. In Renmark, which has never been dependent on Government aid, a rate of £2/15/- an acre for four irrigations is found sufficient, and a reduction in this rate is looked for as a result of the higher level induced in the river by the completion of a weir and lock (the fifth in the River Murray series) just below the town.

A large, and the most important, portion of Victorian irrigation development on the Murray has been in the immediate neighborhood and on both sides of Mildura, and the town, by its central position, seems destined to maintain the primacy which the Chaffeys gave it.

Renmark has been less fortunate in this respect. Its irrigated area has expanded to nearly 8000 acres, and it is still South Australia's leading irrigation town and settlement, not merely by virtue of priority, but by its business solidity and by the value of its production and its industrial enterprises. Its importance as a business

centre is denoted, among other things, by the fact that it is connected with the capital not only by admirable motor and train services, but it is also the only town in the State which gets its daily papers by aeroplane or enjoys a regular (three times a week) aeroplane passenger service. But it appears inevitable that Renmark will be overshadowed in time by the larger, and naturally more

PLAN OF THE ORIGINAL RENMARK CONCESSION
Granted to George and W. B. Chaffey in 1887.

fertile, areas which are being developed on the higher levels by Government money at Berri and Barmera.

The Chaffey area immediately adjacent to and north of Renmark, offers great possibilities for the future, and it is a matter for regret that the survey of this area was delayed until the slump in fruit prices, and the heavy load of debt incurred in connection with the Barmera and other State areas, led to the suspension of developmental work by the Government.

Until the growth of Australian population provides a larger home market, or until more extensive markets abroad are found for our

produce, there is not likely to be any great extension of settlement under irrigation in South Australia. But to a State, the most arid in the Commonwealth, in which less than seventeen per cent. of its total area enjoys an annual rainfall of as much as ten inches, the utilization of its irrigation resources must become a matter of increasingly urgent importance.

And it will always redound to their honor, and be a permanent source of pride to their many admirers, that all subsequent irrigation enterprise in South Australia, as in Victoria, has been modelled on the plans so wisely laid by the Messrs. Chaffey at Renmark and Mildura.

NOTE TO PAGE 250.

‡ Mrs. Charles F. (Ella M.) Chaffey, an accomplished writer of books, short stories and sketches dealing with, *inter alia*, pioneering experiences in Australia, has been kind enough to contribute the following account of early days in Renmark :—

It was in January, 1889, that I first saw the River Murray and journeyed up to Renmark, then in its infant days. We took the river boat at Morgan, our party consisting of my husband and myself, a two-months-old South Australian son, and a two-year-old Californian ditto. With us came a young English lady, a friend, and two maids that we had engaged in Adelaide. There were, of course, other passengers. One of these was Mr. J. M. Smith, who for so many years and until the present time has been actively associated with the irrigation and fruit growing interests of Renmark.

The skipper of the S.S. *Corowa* was Capt. Tait, a familiar name in Murray River annals. He kindly placed his large stateroom at our disposal, and there the babies and I might have passed a peaceful night had we not been prevented by the terrific heat and the swarms of bloodthirsty mosquitoes.

Next morning a tragedy happened. The *Corowa* grounded on a sandbank, and stuck for a day and a night in spite of every effort to dislodge her. It was midsummer. The river was low when we started ; hour by hour it grew lower, and the possibility of our reaching Renmark by water grew smaller. In the end, Capt. Tait pushed his boat off downstream and returned to Morgan, while the other passengers and ourselves were forced to continue our journey overland.

My husband had wired for a rig and a wagon—to *Tarcena* (in N.S.W., nearly 40 miles above Renmark), for there was not yet telegraphic communication with Renmark direct—and soon we found ourselves travelling through sand and oppressive heat until the evening brought relief and we could enjoy the spicy scents of scrub and gums and look overhead at a strange new sky illumined by the Southern Cross.

We aimed to reach *Paringa* that night—a sheep run on the opposite side of the river from Renmark. There we were to occupy the old station house which had been leased by my husband's brother, George Chaffey, then absent with his family in Melbourne. It was long after midnight when we got there. The babies were lifted out of the row boat, carried up a steep bank and through a ghostly garden—and we were at the house door. It was a comfortable, roomy old place, as we discovered in the morning, and there we spent some happy months while our new domicile on Renmark Avenue was a-building.

In the beginning I could see no beauty in the landscape that spread around us. The water of the river as it curved slowly round the *Paringa* banks was plain muddy. The trees along its edge and in the paddock opposite were in

my opinion dull and scraggy. Strange how soon we all came to look at our surroundings with different eyes ! The glamour of the Murray and the Bush got us, and we saw beauty everywhere ; soft neutral tints in the foliage, grace in the half-naked boughs of the trees, and all the lovely colors of air and sky reflected in the mirror of the river.

One of the first experiences to make a lasting impression on me was a corroboree given by a tribe of blackfellows who had been encouraged by the new settlers to show off in the traditional native war dance.

We—with all the inhabitants for miles I'm sure—assembled in the dusk of evening on the level bank of the river across the road from the Company's Offices. We sat underneath the trees on improvised benches. There was no moon ; only a big bonfire gave a red glare and threw deep shadows. Perhaps thirty black-skinned, unclad natives took part in the dance. It was thrilling and rather creepy when they appeared decorated in barbaric lines and daubs of white and red paint—stamping, jumping, writhing to the steady beat of the lubras' wooden sticks—stealthily acting pantomimes of the Fight and the Chase. The gins or lubras squatted in a row almost unseen in the shadows under the trees. Their monotonous *tom-tom* was punctuated at intervals by shrill, startling cries, to which the warriors added their yells.

The exhibition concluded with the so-called Whisky Corroboree, that represented in realistic fashion a drunken orgy. When all those wabbling, wriggling blackfellows suddenly collapsed on the ground with one final, awful howl, we white people were glad to leave. But it was an interesting occasion, and one not to be forgotten.

There was enough excitement in those first days. New fruit plantations were being set out daily ; new settlers were arriving, objects of keen interest ; new pumping plants were being installed. All the stir of a new settlement was surging around us and we, young like the place, enjoyed it all.

Hugely appreciated was the first fruit grown on our own land. It might be thought that that did not happen for years—but not at all. Our first summer a hot one, if ever saw us revelling in a crop of watermelons, surpassing all other watermelons for size and flavor. There were plenty to share this fruit with us. A merry company of young fellows, old country and native-born, had found their way to Renmark. Some were in the Company's employ, some had taken up land. There was the young banker, a cheerful soul, who sang a lively song ; the good-looking engineer and his assistant ; a sweet-voiced tenor and his serious, bearded brother ; and many more. A dozen of these boys would gather around our table and demolish one monster watermelon after another. They had been cooled in the cellar, and their pink flesh was like nectar—more liquid than solid. Following this simple feast there would be a sing-song. The English lady I mentioned before was notable at the piano, and ready to play accompaniments till the small hours. Even in the unfurnished house our piano stood ready for every occasion. Solos and choruses by the hour ! Where are the singers now ?

Tragedy overtook one—the banker, the jolly singer of comic ditties. Love played havoc with his life, and he put an end to it. Some departed later to Western Australia—the engineer for example. Others, alas, have gone still further West in the years since then. A few stayed in Renmark and prospered.

The great social event of those early years was the annual race meeting. This was held, at least at first, on the flats beside Ral Ral Avenue, about a mile out of town. It was an all-day affair. We attended in family parties, leaving home early so as to miss nothing of the picnic. Not only Renmark settlers, but station people from up and down the Murray, within reasonable distance, were there. We settled ourselves in family groups, hugging the scant shade, and then visited back and forth, while the horses were paraded and admired and the men gathered in close knots, avoiding their wives and offspring except at lunch time.

There was always a local race, and that was the best of all. Sometimes we entered one of our own horses, with little chance of success, but just for the fun of the thing. It was all amateur, and the jockeys—mostly boys we knew

looked important and handsome in their gay silks. But before the first race was called, men from outlying parts began to arrive with their horses, and the prizes generally went to one or the other of these strangers. Disappointing of course to us ; but when it was all over nothing could alter the fact that we had spent a splendid day, one to be remembered and talked over until another year brought another race meeting.

It wasn't long till a little iron church was built in the township. Before that, important dignitaries had visited us, and set us going in the right track ; Lord Bishops and Venerable Archdeacons among them. In between whiles we had a lay reader—an Englishman known as "The General" for his military bearing, whose sonorous voice gave an impressive rendering of the Service. The women got busy in a Sewing Guild. Bazaars, Concerts and Socials followed and helped to pay for the new church and furniture. Finally we became part of the Murray River Mission, which operated a motor launch from Murray Bridge to Tareena, attending to the spiritual needs of the river people. Canon Bussell was for many years in charge of it. He gave to Renmark two Sundays out of five, until we had a resident clergyman. A true river pilot was the Canon, and knew every foot of the waterway that was his parish, and carried in his heart the interests of all who lived on it.

My earliest shopping was done on the *Queen*—a kind of floating department store with paddle wheels, that travelled up and down the river and pulled in to the bank without ceremony at sheep stations and townships. A whistle was blown, a bell was rung—and the *Queen* was ready for customers. It was a primitive way of doing business, but convenient, and the prices, as I remember them, were reasonable. If the stock was short a thing you wanted it would be brought to you on the next trip, in a month's time.

But, of course, we had stores at the very beginning of things. Barger's, I think, was the first. Then came Von Alpen's Pioneer Store, and others. The prices of those days are wonderful to remember. The butcher called on us with his stock in his cart, and we could buy the best cuts of beef for sixpence a pound—with forequarters of mutton (and what good mutton !) at twopence halfpenny a pound, and hindquarters threepence. Moreover, we paid two pence halfpenny for a two-pound loaf, and bought the best flour in the world for half a crown a fifty-pound sack.

How many recollections of those early days crowd into my mind ! Pleasant visits to the neighbouring stations on the river for instance—visits to *Chowilla* and *Bookmark*, with their wide, cool stone houses and delightful gardens, where one was always sure of a hearty welcome and hospitable entertainment in true squatter style. The friendly atmosphere—the gracious simplicity of those Murray River homes, will always stay in my memory.

We hear that the railroad has reached Renmark, and the old stage-coach that used to bring our mail has passed out of business. Also, there are at least two Picture Palaces. I am reminded that I saw my first "Cinematograph" in Renmark, shortly after the Boer War. Awesome pictures that shivered and shook till one was almost blinded—yet more marvellous to me than any modern film could be now.

One last word for *The Renmark Pioneer*, which was started by Mr. Ashwell, of kindly memory, in 1889, I think. It was a fine little paper then, and was animated by the same undaunted spirit of courage and hope that has never left it.

We may truly say that that same spirit was the life of Renmark itself, and that from the impetus of those early days the irrigation colony on the Murray has advanced to occupy its rightful place in the forefront of South Australian progress.

CHAPTER XIX

THE RETURN

ALTHOUGH the liquidation of Chaffey Brothers Limited left George Chaffey entirely without resources, his brother, W. B. Chaffey, was more fortunate. He was able to retain some small property, sufficient to enable him to make a second start at Mildura and, after years of uncertainty and hardship, to win through to comparative affluence.

W. B. Chaffey had no pressing need to cut his connection with Mildura, as had his elder brother, and he remained at the settlement, sharing its tribulations and its triumphs until his death in 1926. Familiarly known as The Boss* to everyone in the district, W. B. Chaffey devoted his business talents to the welfare of Mildura, and the dried fruits industry of the Murray owes much to his wise counsels. He became the Grand Old Man of Mildura, revered for the misfortunes through which he had passed, as well as for his admirable qualities of heart and mind.

In the circumstances it is not surprising that a tradition grew up at Mildura which failed to recognize that great as were W. B. Chaffey's services to the colony, it owes its very existence to George Chaffey. He took on himself full responsibility for the project, when to do so was regarded as an admission of defeat. When the wolf-pack had scented blood, and was howling for its prey, he chivalrously relieved his younger brother and junior partner of all the odium which attached to the Chaffey regime. His destiny called him back to California, the scene of his earlier triumphs, and so he passed out of Mildura's future.

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* The word "Boss" used in this sense is Australia's familiar designation for an employer, chief or leader. It denotes that the person referred to has the confidence and affection of those who use the word, signifying they are proud to serve under him. The sinister meaning has been borrowed from the U.S.A., and is occasionally heard in the great cities, but outback it has only its truly Australian application.

In the course of time it came to be believed in some obscure way that George Chaffey had deserted his post, while the younger brother had stuck to what appeared to be a sinking ship; that in every sense W. B. and not George Chaffey, was the real founder and father of Mildura. That theory does injustice to the man who sacrificed eleven of the best years of his life and all his resources in the creation of Mildura. George Chaffey's reputation has long since been vindicated by the subsequent history of Mildura, which has given the lie to every charge worth noticing made against him; but the new generation that has come along, and knows not George Chaffey nor the facts of Mildura's early history, has accepted as truth the statement circulated by his enemies, that he deserted Mildura, leaving "W. B." "to face the music." There was no such issue in the conduct of the brothers.

George Chaffey believed above all men in the future of Mildura; it is the greatest regret of his life that he was excluded from that future. Had it been possible he would never have left Mildura, and would have missed the honors and wealth which awaited him in California. But he had no alternative. He was left without means after the liquidation, and, his property at Mildura having been taken over by the representatives of the debenture holders, found it impossible to make a living there. But, black as the outlet was, he had no thought of leaving Australia until early in 1897, when he received a letter from an acquaintance named Martin, a land agent of the Plant Railroad system of Florida, inviting him to join in a land subdivision campaign about to be embarked on by the Plant Company. His prospects in Victoria seemed absolutely hopeless, so he decided to accept this offer, and in June 1897, sailed from Sydney for the United States.

W. B. Chaffey had the good fortune (though he did not regard it as such at the time) to remain at Mildura,* to become

* W. B. Chaffey remained at Mildura reluctantly enough, and it was not until some years had elapsed that he became reconciled to the prospect of a future spent in a community which contained people who had organized to wreck the Chaffey fortunes. In 1898 he contemplated leaving Mildura, but found himself unable to carry out his intention. The following letters, typical of many received when the news of his impending departure was circulated, express the feeling of representative Victorians and of the better class of Mildura settlers towards the Chaffeys:—

Legislative Assembly, July, 1, 1898.

My dear Mr. Chaffey,

I am very pleased to hear that your brother, Mr. George Chaffey, is about

regarded as the pivot of its activities, in a large sense the author of its prosperity, and its guide, philosopher and friend. And so it happened that George Chaffey's mantle fell on the younger brother who, as the years passed, gained increased honor and distinction from the fact that he was one of the original Chaffeys, and from the popular assumption that the other brother, George, had somehow failed in skill, faith and courage.

Bare justice has not yet been done to the greatness of George Chaffey's achievements in Australia. Only those of the old days who came into contact with him, and felt the magic of his dynamic energy, glowing personality and crystal clear love of truth, know how Mildura's future lay in those strong hands. If he had wavered during the bitter years in which he reaped ingratitude so abundantly, if he had been embittered by the malice of those he was trying to help, Mildura to-day would be but a memory. It was his lot to be compelled by the iron force of circumstances to leave Australia, but his warm generous nature has taken pride in the fact that his brother remained to gain the laurels of victory, to see the Chaffey

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to enter on important work in the States and can only regret that our Colony of Victoria is not the area of his activity.

I do feel it a loss that he or you should leave Victoria, and I take this opportunity of testifying, from perhaps as intimate a knowledge of the facts as anyone possesses, that the great pioneer work of Chaffey Brothers in connection with the Mildura Irrigation Settlement was both honest and valuable. The difficulties which surrounded the Settlement were not due to your fault, and as time passes the universal testimony, of those best qualified to judge, is more pronounced as to the great loss Mildura sustains by the severance of your connection with the control.

I should like to say that as the senior member of the firm of Fink, Best and Hall, and occupying the position of Counsel and legal advisers to the liquidators of Chaffey Bros. Ltd., that there is nothing in the history of the company in the slightest degree reflecting on your integrity or ability throughout the whole history of the Company.

I can only repeat that I regard the departure of your brother and yourself from this colony as a great loss to us. I do hope your future will be bright and successful, and afford compensation for the reverses which, during our long continued depression, have temporarily overwhelmed yourselves in company with practically the whole of the enterprising men of this colony.

(Signed) THEODORE FINK.

Mildura, June 10, 1893.

My dear Mr. Chaffey,

It is indeed with deep regret that I hear you—who have been for so long one of us—are now about to leave Mildura, and I can only sincerely hope that in whatever you undertake in other countries, you may meet, and make your own, the success which you deserve and which certainly would have been your reward here had it not been for the antagonism of a portion of the settlers in Mildura itself, and the very evident unwillingness of the Victorian Government to take its fair share of its responsibilities, consequent probably

reputation rehabilitated in prestige and popular esteem. Throughout the years, he has rejoiced in the triumphs of his younger brother and former partner.

Stripped of resources and injured in reputation as he was, George Chaffey left many good friends behind him in Australia, and these have jealously guarded his reputation. Time has, however, thinned the ranks of those who are able to testify personally to his self-sacrificing work in Victoria and South Australia, and so the full facts of his arrival, sojourn in and departure from Australia are recorded for the information and benefit of those interested in the development of the Australian Continent, and in the formidable problem of reclaiming its vast arid territories. The same consideration which impelled W. B. Chaffey to remain at Mildura—the necessity for gaining bread—impelled George Chaffey to depart, and those who have imagined in the past that George Chaffey's return to America was caused by any other reason have wronged him indeed.

Many influential friends conveyed to George Chaffey their personal sorrow at, and their recognition of, the loss the State was suffering by his departure. All regretted that circum-

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on the well-known opposition of an influential body in Parliament to the irrigation scheme.

In parting with a friend there are many things a man can write better than he can say, and I would wish you to carry away with you some slight idea of the estimation in which I, in connection with a large majority of the settlers, hold you. . . . . .

There is one phase in our affairs in particular (and I hope you will forgive me if I mention it), which has always compelled my deepest sympathies; that is the totally and cruelly wrong impressions which obtain abroad as to the causes of the failure of your great schemes here, which misunderstanding must be the necessary consequence of the complete ignorance of the local conditions which, together with parliamentary jealousy, produced such failure. But when I speak of failure, the scheme has not and will not fail now that the Government has at last awakened to the realization of the position that its own apathy has placed us in. It will come right again, too late indeed for you, but not for us who remain, and though you may have left us, I know as well as I know myself, that you will watch and rejoice in the progress of the place as much as, maybe more than, any of us.

It is recognized now by most of the best informed people here that even after the failure of the Firm, had your brother, Mr. Geo. Chaffey, been placed in the position of general manager of the Irrigation Trust, with full power and a free hand, things could even then have been put on a proper footing and sound basis.

In leaving, I want you to understand that whatever have been the feelings of a section of the settlers, you now leave a colony of friends and well-wishers, and I am not singular in wishing you in the future the success which you and your brother so really deserve.

ROBERT HOOPS

(Formerly Managing Director of the Irrigation Company).

stances made it manifestly impossible for the Government to use his services on the national irrigation works. Any attempt to do so would have provoked a howl of malicious triumph from those who were endeavoring to show that there was something wrong in the Chaffey agreement from the beginning.*

George and Mrs. Chaffey and their youngest son Jack sailed from Sydney for San Francisco by the *Monowai* in June, 1897, leaving at Mildura their elder sons, Andrew and Ben, then young men in the early twenties. Both, starting from the bottom of the ladder, have attained foremost positions in their chosen spheres. Andrew M. Chaffey is to-day President of the California Bank of Los Angeles, which ranks tenth among the banking institutions of Western America. He

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* The following letter, one of dozens received by George Chaffey soon after his return to America, crystallizes the general feeling which was already gaining ground, that Victoria had made a mistake :—

" View Point, Bendigo,
August 13, 1898.

Dear Mr. Chaffey,

I have often thought I would write to you if by any means I could convince you that your Australian experiment was not all a disaster. I can quite understand that, after putting forth all the concentrated energy and experience accumulated during a busy lifetime, and applied with absolute good intention, a man might feel inconsolable when the effort failed in achieving its direct and advertised purpose, and the good will was ignored and changed by malicious people into criminal intent. It takes an extraordinary man to survive the injustice, to preserve the balance of his mind and keep his heart from hating his fellow men. It is hard when a man, for instance, who has absolutely no motive but compassion and sympathy, and lives a perfectly self-denying life, is told that the good he does is prompted by Beelzebub, the Prince of the Devils. One cannot help being staggered by surprise to see him after such treatment persevering in his self-sacrifice right up to the torture of crucifixion. . . . . .

But I want to tell you that you have not failed, and to admit my great indebtedness to you. There are some lessons I would rather learn than inherit a million of money, and if you would rather teach them than make the same sum, you may rest consoled for the loss of the fortune Mildura might have brought.

You have not shown me how a man ought to behave in a storm. I have always known that. But you have shown me how a man *can* do what he ought, and that is much more inspiring than pure precept. You have no idea of how I used to watch you during that abominable agitation. . . . At every phase of it I would mentally look toward you and inwardly pray that you would keep your head and not descend to the level of the crowd. Once, when I was afraid that the rancor of the fight might tempt you to leave your dignity and harbor thoughts of reprisal, I ventured to forewarn you by telling you that your enemies were afraid that if you secured the pumping contract and became the sole employer of labor, you would make the place too hot for those who had raised the row. Your answer was quite enough to preserve me from all future doubt. . . . From that time to this I have always thought, ' There is a man that cannot be ruined by circumstances, and *may* turn adversity to his advantage.' I speak in these general terms

remained at Mildura, where he obtained his first banking experience in the service of the Union Bank of Australia, until 1898.* Ben Chaffey threw in his lot with Australia, and is to-day one of its most affluent and influential pastoralists, with vast interests in the vicinity of the two flourishing Murray settlements which his father founded.

From San Francisco, George Chaffey went immediately to Florida. He discovered to his chagrin that he had been chasing another will-of-the-wisp. Martin, who had induced him to come over, was not in a position to redeem his glowing promises of, nor did the prospects of the Plant Railroad's selling campaign seem very promising. He then went to

* Andrew Chaffey arrived in New York from Australia shortly after the sinking of the U.S. Warship *Maine* by the Spaniards, at Havana, which precipitated the Spanish-American War. While waiting for his baggage to be cleared, he happened to open the copy of the Melbourne *Argus*, which chronicled this, the greatest sensation of the closing years of the century. The article describing the sinking of the *Maine* was bordered with heavy black lines. Patriotic feeling was running tremendously high at the time, and in an instant the Customs officials had gathered around young Chaffey. "We're not going to look at your bags if you come from a country which shows its sympathy with the States in that way," said one, and Andrew Chaffey's luggage passed through the New York Customs untouched. Everywhere he went in his journey across the States to rejoin his father, the same copy of *The Argus* was a passport to the hearts of those to whom it was exhibited.

because if I were more definite I would be afraid of your thinking I was descending to flattery. If ever the people erect a statue to perpetuate your memory in Mildura it will be for what you have done to the country. If I had the writing of the inscription, I would say it was in memory of what you were in yourself. It was Themistocles's boast that he could tell how to make a city, but it is far harder work to build a man and, to my mind, it should be ample consolation for not achieving what *seems* success if you have, by holding the fortress of your self-respect against every violent assault, achieved what *is* success.

It may please you to know that Mr. Graham, M.L.A. (formerly Minister for Water Supply), in conversation with me, said, 'Nobody will ever get me to believe that George Chaffey was not a fine, straight, honest man, who meant well and would have done well if he had been let alone. It was talk that killed Mildura.' He is not the only man who thinks after the same fashion. We pass through epochs in our mental development and are fortunate if those epochs are marked by some outstanding feature that will bring the attained truth ever to our recollection and prevent retrogression. You are the marker to me of an epoch, during which I learned to see clearly how unimportant success in our work is alongside of success in the work's effect on us.

I could say many other things on your freedom from money greed, your clean talk, your clean conduct, but I will spare you. Even if we do not meet again on this earth, we shall be able to compare notes in another place. Until either of these events (whichever shall first happen, as we say in Wills), be sure I shall not forget your many kindnesses to me.

With warmest regards,

CYRIL F. JAMES."

Kansas City with an introduction to a railroad president, who had a scheme for building a line from Kansas City through Texas into Mexico to the Gulf of California at Topolobompo Bay. He did not join in the scheme, which failed to materialize.

While in Kansas City he made the acquaintance of one Morgan Jones, Vice-President of the Fort Worth and Denver City Railroad, and principal owner of the Wichita Valley line, a small subsidiary. Jones offered George Chaffey the position of land agent for the Wichita railroad. He readily accepted it, and took up his headquarters at Seymour, Texas, the terminus of the Wichita Valley line. He found that the advantageous sale of the land could be accomplished only by a diversion of the Brazos River for irrigation. He was at work on plans for this diversion when Andrew Chaffey arrived from Australia.

Young Chaffey, who, though still in the early twenties, was already showing marked financial and organizing talent, was very disappointed with the prospects of the scheme, and strongly urged his father to return to Los Angeles, where he was well known and had influential friends. George Chaffey's gentle wife was feeling the strain of having lived for long years under pioneering conditions, and her delicate health demanded a less exacting environment than was provided by what was in those days a remote railroad outpost. But George Chaffey, seeing work for him to do, was inclined to stay himself and push on the Wichita Valley project. He consented, however, to accompany Andrew on a visit to Denver City, Greeley and Fort Collins, Colorado. Irrigation was booming in Colorado then, and many great works were projected. The Chaffeys, however, were unable to form satisfactory business associations in Colorado, and the visit was fruitless.

Smarting under his Mildura experience, and the feeling that his friends in Southern California, unaware of the true facts of his Australian experience, would imagine he had lamentably failed in the great schemes they knew he had undertaken in Australia, George Chaffey's sensitive soul shrank from seeking an opening in Los Angeles and, despite his son's entreaties, he returned to Seymour. Andrew then decided to go to Los Angeles to ascertain for himself what the prospects were, in the

hope of inducing his father to follow him. He was most cordially received by all of George Chaffey's former friends and business associates, who strongly urged him to induce his father to return to Southern California, where the prospects for a man of his specialized knowledge were unique. Young Chaffey thereupon leased a house and telegraphed his father to come at once.

Los Angeles, the wonder city of the twentieth century, was then just embarking on that marvellous era of expansion which made it in a few years a great world city. Boundless confidence in the future, inspired by a combination of economic and social advantages possessed by no other location on the globe, is the secret of its miraculous rise. Transformed from a tiny Mexican town into the Queen city of the West, as suddenly as if by an Aladdin's Lamp, modern Los Angeles proves that truth is stranger than fiction, for the story of its growth from obscurity to its present day opulence and power might be taken from the pages of the Arabian Nights. When George Chaffey first saw Los Angeles its population was but some 11,000. In 1898 it numbered just over 100,000 souls, and wonderful as this sixteen years growth seemed, it was but the beginning.

The failure of Victoria in the nineties to realize the true significance of Mildura, and the ingratitude which drove George Chaffey back to America, marked the turning point in the Chaffey fortunes, enabling George and his family to participate in the golden stream of wealth which rewarded the makers of the Los Angeles of to-day. Great as were the opportunities in Australia—and how great these were is proved by Ben Chaffey's success—they were limited compared with those offering in Southern California at the dawn of the new century, and those who caused George Chaffey to leave Australia sent him forth to fortune as well as to still greater achievement.

Reluctantly enough, George Chaffey, in the summer of 1898, returned to the scene of his earlier triumphs. He arrived at the precise psychological moment. California had been languishing under drought conditions for some years, and fruit districts that had always had ample water were suffering severely. Ontario was feeling the pinch, and the San Antonio Water Company, which George Chaffey had organized in 1883, was seriously alarmed about the future. During his absence

in Australia the Sante Fe railway had come into Southern California, bisecting the Ontario Colony, and a new town, originally named North Ontario, now Upland, had sprung up north of the line. Rivalry between these two towns had degenerated into acute jealousy at the time of George Chaffey's return. The differences in the district naturally were reflected in the San Antonio Water Company, which was representative of both, and the directors were unable to agree on any constructive action to meet the emergency caused by the water shortage. George Chaffey's return was hailed as the only solution of the *impasse* which had been reached. He, the creator of the colony, was the one man knowing its problems who had not been identified with either of the warring sections. The directors, on learning of his arrival in Los Angeles, immediately commissioned him as consulting engineer, at a salary of $500 a month, to get water for Ontario by any means he could devise.

George Chaffey set to work on the singularly congenial task of saving from difficulty, if not from disaster, the colony he had founded. He soon discovered numerous small springs and subterranean seepages. At these he installed portable pumps. No trickle of the precious fluid was too small to be tapped in this way, and the aggregate result, when all the water thus won had been turned into the channels, was sufficient to relieve the fears of the settlers. He next put down a series of artesian wells along the canyon, and linked these up by a sloping tunnel one hundred feet below the surface, thus solving the problem of bringing water to the surface without continuous pumping. The water in each individual well would not rise to the surface, but, linked below the water level by a tunnel sloping with the country towards the Ontario reservoir, each well was tapped without pumping, and a handsome volume of water was the aggregate result. It was another Chaffey triumph, and the drought was definitely conquered as far as Ontario was concerned.

His next venture gave George Chaffey his first material reward for sixteen years of pioneer engineering. It also displayed his almost uncanny instinct for finding water. He purchased for $1600 a 35-acre lot at Cucamonga, adjoining Ontario, believing, though no one else did (the price proved that), that

it would furnish a fine discharge of artesian water. Examination had convinced him that a clay formation known as the Red Hill, was holding the water back. The result was a success spectacular and beyond all popular expectations. A great volume of water was released by a tunnel driven through the clay obstacle. This was sold in 30-inch heads, and later piped to Ontario and sold for domestic use. Within a year the Chaffeys (for Andrew had now formed a partnership with his father) had cleared $75,000. It was this which gave George Chaffey his start on the highway to the wealth which he later amassed—mainly through the splendid business gifts of his son Andrew, for George Chaffey was always engineer first and business man afterwards.

George Chaffey now became associated with the most ambitious reclamation scheme the New World has seen—the irrigation of the Colorado Desert.

CHAPTER XX

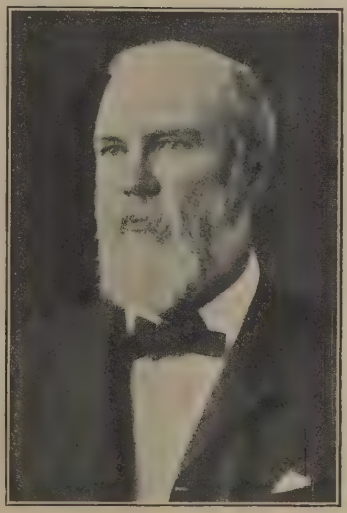
THE DESERT

WE have seen that in the early eighties George Chaffey was tempted by a visionary living half a century before his time to undertake the gigantic scheme of irrigating the Colorado Desert. Dr. O. M. Wozencraft had grown old in the pursuit of a will-of-the-wisp, the most extraordinary that ever led a man off the path of sanity—so it was thought by the people expected to provide the money.

George Chaffey, then a young man fresh from the Canadian snows, imagined that, apart from all other considerations, the torrid climate of the desert, unrelieved by rain or surface water, made the project chimerical. Dr. Wozencraft died still dreaming his impossible dreams of reclaiming the Colorado Delta, and George Chaffey went to Australia to undergo what seemed designed by fate to be a kind of apprenticeship for the task that lay before him.

It was a long and bitter lesson, but it left George Chaffey enthusiastic, idealistic and eager as of old, and, in the fulness of time, he returned to America knowing that whatever obstacles there might be in the way of turning the yellow waters of the Colorado on to the desert, climate was not one of them. His eleven years at Mildura and Renmark, rainless for months at a time, with a shade temperature rising well over 100 degrees Fahrenheit, had taught him that not only vegetation, but human beings of Anglo-Saxon stock, throve under conditions of intense dry heat. So one of the vital objections to the Wozencraft project was proved by his Australian sojourn to have been groundless. Thus America as well as Australia owes incalculable benefits to the strange set of circumstances that not only brought George Chaffey to Australia, but sent him back to the United States equipped and acclimatized for the conquest of the Colorado Desert in the last days of the century.

In 1899, the California Development Company, which had hawked the Desert Reclamation proposition all over America and Europe, had come to the end of its tether. It turned to George Chaffey in despair and appealed to him to put his genius and money into the project. It was the hour of destiny for those, many then unborn, who to-day are living in the Imperial Valley.* The California Development Company was "flat-broke." Impending suits would within weeks have wiped it out, and the reclamation of what is now the Imperial Valley might have been postponed for a generation.



GEORGE CHAFFEY IN 1900

The inner history of the business side of the project has not yet been fully revealed, and it is not surprising that there has been a general failure to appreciate the fact that George Chaffey undertook a proposition which had been ridiculed in every American financial centre.† He risked his recently acquired capital and the money of those who supported him because he too, like Wozencraft, was a dreamer and could foresee what has since come to pass on the Colorado Delta. More fortunate than Wozencraft in being in tune with the spirit of his own time, he has had the supreme happiness of living to see a region formerly uninhabited, settled by nearly 70,000 people as a direct result of his own faith in himself and in his dreams.

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* See map at end of volume.

† "For nearly nine years the California Development Company had struggled through adversity, laughed at by big capitalists, and by others dubbed pipe dreamers and rainbow chasers."—A. H. Heber, then President of the California Development Company, testifying before the House of Representatives Committee on Irrigation of Arid Lands, March 21, 1904.

In 1900 he was the one man with financial backing who could be found to put money into what was still considered a fantastic proposition. He believed not only that the desert could be converted by irrigation into a Damascus of the West, but that when they knew the facts, home seekers would flock to this abomination of desolation. He backed his vision with his skill and money against the advice of the shrewdest brains in Southern California, against the keen judgment of his eldest son, the future bank president. He was guided by instinct rather than by ordinary business considerations. He was right and they were wrong. He succeeded where they predicted failure and ruin.

Little wonder it was that financiers had fought shy of the California Development Company. The words "Desert" and "Salton Sink" sounded ominously in the ears of men seeking big profits and quick returns. They did not relish the thought of sinking their gold in a desert. Apart from purely engineering problems, the practical business difficulties of the scheme which C. R. Rockwood and A. H. Heber placed before George Chaffey in 1899 were but faintly realized by the promoters. Some of those who had been pushing the California Development Company's proposition knew little and cared less for the irrigation of the desert, but were merely "shoestring" operators seeking to make easy money at the expense of someone with more cash than caution. As events proved, they failed to realize the magnitude of the problems involved in bringing water from the Colorado into the heart of a rainless expanse of more than 1,000,000 acres.

Already a whole literature has been written around this fascinating region, geologically and socially one of the most singular tracts in the world. Devoid of surface water before George Chaffey brought it there in 1900, and with a mean rainfall of three inches a year, the Colorado Desert last century was an accursed region of shimmering heat, mocking mirage and racking thirst, some ninety miles across from the San Gorgonio Pass in the San Jacinto mountains to the Colorado at Yuma, and more than one hundred miles long from the Mexican boundary line to Indio. Explorers, pioneers and travellers had perished of thirst since the advent of the white invaders, and how often it had conquered the red men subsisting on its fringe, history will never record. There were no dry stages in the

desert then. It was all one dry stage—a race for life from the Colorado's banks north-westerly to the first water at San Felipe or Vallecitos. This was a 90-mile *journado* without water or shade, across a flat, treeless plain of hard clay-like soil or burning sands.

To-day the desert is a garden of inexhaustible fertility whenever touched by the water brought from the river by the Imperial canal system. Before 1900, a desert without an oasis, it is to-day an oasis of 500,000 acres ever encroaching on the wilderness; fertility, borne by the Colorado water, ever spilling over on to the sterile plain. Approaching the Imperial Valley from any direction, its past history can be seen at a glance. The splendid highway from San Diego, which so amazes the visitor, passes over sheer desert until the first canal is crossed. Instantly the parched brown surface exposed for ages to the rays of a fierce sun is transformed into an oasis, which stretches away in three directions to the horizon. Cactus, greasewood, or mesquite, which exist miraculously without water, give place to field, farm and orchard.

On one side of the ditch is a sun-smitten waste, on the other luxuriant fruitfulness. The date palms remind one of the Orient, and the giant eucalypts of Australia. The air is fragrant with blossom. Orchards, alfalfa fields and vegetable gardens are passed. Then comes a prosperous city, then the gardens and farms, next another city and so on until the last canal is reached. In an instant the car is gliding on the desert again, with the hot wind blowing the sand into fantastic shapes. A few minutes and the oasis is out of sight and seems but a dream.

The vastness of the lifeless solitude oppresses the imagination and fills the mind with awe. Wonderment at seeing nature in such a strange mood is increased by the knowledge that the river towards which the car is speeding had built up this great tract, at once so repellent and so lovely, by pushing the ocean back from its bed. With this thought comes full realization of the titanic powers of the river which has won back from the Pacific Ocean for humanity an area thousands of square miles in extent. It is a wondrous region, with its yellow river, Sahara-like sand dunes, seemingly endless expanses of level plain, multitudinous gardens unsurpassed for beauty and

fertility, fierce sunshine and sapphire skies, and its tens of thousands of courageous public-spirited citizens. Geologically and socially the Imperial Valley is unique.

Although so much has been written about this region over which the veil of mystery hung so long, full justice has not yet been done to the achievement of the man who brought the water to it, nor will be done until the history of the Imperial Valley has been written by some one who has had full access to original sources of information. The California Development Company was all but dead when George Chaffey took it over, and it was his genius and money that re-vitalized it. While he was out in the desert building the canal, others were appropriating the glory of the most spectacular irrigation achievement the New World has witnessed.*

The area occupied by the Colorado Desert formed in prehistoric times the head of the Gulf of California, which to-day separates Baja California from the Mexican States of Sonora and Sinaloa. In remote ages the Gulf extended to the slopes of San Jacinto and San Bernardino, California, and the Colorado River, bringing down with it vast quantities of sediment,† torn from the Rockies and eroded from the mighty chasm known to-day as the Grand Canyon of Arizona, entered the Gulf just below Yuma. The accumulation of silt at the ancient mouth of the river formed a delta, which gradually extended west and south across the Gulf towards the Cocopah range, and ultimately to the eastern edge of the Peninsula mountains. The upper arm of the Gulf then became an inland sea, cut off from the Pacific by the Colorado Delta.

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* W. E. Smythe, author of *The Conquest of Arid America*, told the House of Representatives Committee on Irrigation of Arid Lands, on March 25, 1904, that it was "the most marvellous achievement of irrigation in the West." Congressman A. Bell, testifying before the same committee on April 11, 1904, described Imperial Valley as "an example of the greatest irrigation enterprise this country has ever witnessed."

† Professor Blake points out that the Arizona Experiment Station found the lower Colorado carries 35,000 acre-feet of silt annually. An acre-foot of water contained an average of 9.62 tons of silt. In 1904 the amount of silt in the river water varied from 84 to 3263 parts in 100,000 parts by weight according to season.—*Sketch of the Region at the Head of the Gulf of California.—A Review and History*, by Dr. Wm. P. Blake, Emeritus Professor of Geology, University of Arizona. C. E. Tait, in *Irrigation in Imperial Valley*, 1908, asserts that a field to which three acre-feet is applied received 14.43 tons of silt, with a money value as a fertilizer of not less than $1.11 per acre-foot.

RELIEF MAP OF THE LOWER COLORADO

Prepared by the U.S. Reclamation Service, showing the Imperial Valley. The triangle formed by the two mountain ranges and the International boundary line is much below sea level. This area, formerly the northern extremity of the Gulf of California and exposed for ages to a fierce sun, was one of the most desolate regions in America until irrigated by the Imperial Canal constructed by George Chaffey. It is now termed the Winter Garden of the United States. In order to avoid the great range of sand dunes shown on the map just north of the Mexican boundary and west of the Colorado River, George Chaffey had to take the Canal out of California into Mexico and then back again into United States territory.

Professor Blake, who identified and named the Colorado Desert in 1852,* found that the delta slowly assumed the form of a giant dam or levee, stretching right across the Gulf, finally completely cutting off the northern end from the ocean. Vast deposits of fossilised marine shells have been found on the mountain slopes 1000 feet above the bed of the Valley of to-day.† Not satisfied with having built up a barrier against the Pacific Ocean, the turbulent, wayward Colorado proceeded to expel the salt water from the inland sea which it had formed. This was the work of ages, but it was finally accomplished, and the river had reclaimed for future Americans a tract thousands of square miles in extent.

To understand how this was done it must be realized that the lower Colorado, then as to-day, was flowing through and riding on its own ever-extending delta, and its banks were thus not only above the level of the surrounding country, but were composed of alluvial material through which the fierce stream repeatedly forced its way. The Colorado then could change at will its course from the Gulf side of the delta to that portion shut off from the tides. At flood periods it burst its banks and spilled over into the inland sea ; in its calmer periods it passed on the other side of the Delta into the Gulf. First the salt water was expelled by the Colorado floods, and later the shut-up basin alternately dried up or became converted into a fresh water lake of about 2100 square miles, occupying the north-western end of that portion of the Gulf of California cut off from the sea by the delta deposits. As the delta became larger and more consolidated, the overflows of the river became rarer, until the fresh water lake disappeared.

This was the origin of the extinct lake (now the Imperial Valley), named Lake Cahuilla by Professor Blake, in 1853, after the Indian tribe which inhabited the region. The fierce tides which swept up the Gulf then, as now, were an important factor in the conversion of the inland sea into a great fresh water lake. Damming the river back to a great height at frequent intervals, they caused it to overflow into the shut-

* The State of Colorado had not then been named.

† The occupation of the Valley by sea water is believed to belong to the middle tertiary period.

off arm of the sea. That this fresh water lake existed for long ages is proved by the abundance of fresh water shells which strew the whole valley bed from the international boundary line to Indio. So great is the accumulation of silt over the former ocean bed that excavations 1000 feet deep reveal the influence of the Colorado.

The desiccation of Lake Cahuilla left low and dry a broad region lying well below sea level, enclosed on three sides by mountain ranges. It was a 1,000,000-acre waste of nearly level land, sloping gently northward from the international boundary line. The whole Colorado Delta, *i.e.*, the area built up by the river since the period when the Gulf of California extended to Yuma, embraces an area of about 6000 square miles, extending from Yuma westward to the Peninsula mountains, and from the present Gulf shore on the south northward beyond Indio. Its eastern boundary lies in Sonora, Mexico.*

Shore line and traces of beaches still remain to excite the wonder of even unscientific visitors. A thick incrustation caused by a deposit of travertine marks the ancient high water line along the base of the San Jacinto mountains at the northwest end of the Valley. The lowest depression in the lake bed was named the Salton Sink (now the Salton Sea). This was the residuum of the long vanished Lake Cahuilla. The valley sloped down from all directions towards the Salton Sink. The shore line level of Lake Cahuilla ranged from 42 feet above sea level to a maximum of 287 feet below at the Salton Sink. Thus almost the whole of what is now the Imperial Valley is below the level of the ocean, as well as of the Colorado, still riding along the alluvial ridge of its own creation

The river, which has worked such wonderful changes, well deserves the title of the Nile of the West. Draining 300,000 square miles of country in its 2000 mile course, and fed by the storm waters and melted snows of one of the world's great mountain systems, it is second only to the Nile in its fertilizing powers; but it is a destroyer as well as a creator, a monster of incredible ferocity, tamed in 1907 only after the most spectacular fight in modern engineering history.

Fierce heat, low humidity, long summers, mild winters, sudden changes and constant burning winds, which convert the

* The Colorado Delta lies between parallels 32 degrees and 33 degrees N and Meridians 114.30 and 115 West.

loose sand into an ever-flowing fluid-like mass, are the main climatic features of the extraordinary territory which the Colorado made first for the torment, then for the benefit of mankind. Terrific sand storms, reminding Australians of the Barrier region of New South Wales, gave the desert climate an evil reputation. These have been mitigated by the intense cultivation and tree planting which have followed irrigation. Many varieties of eucalypts remind the Australian visitor of home. The maximum summer temperature ranges from 115 degrees to 120 degrees Fahrenheit. The minimum recorded is eighteen degrees.

From the point of view of the irrigationist there were two most peculiar and felicitous features of the Colorado Desert :—

(1) An unlimited supply of rich alluvial land, unsurpassed in America for fertility when touched by water, and obtainable practically for the asking under the Desert and Homestead Acts. The Desert Act entitles a citizen of the United States to take up from forty to 320 acres of unreclaimed land on payment of twenty-five cents an acre on filing, and a dollar an acre within four years, on furnishing proofs of having raised a crop off one-eighth of his holding. The Homestead Act imposes a five years' residence condition on the land selected.

(2) An unlimited supply of water, capable of diversion by gravitation. Among the many peculiarities of the Colorado is the fact that it conveniently furnishes the greatest supply in summer when the water is most needed. The reason is the increased volume added to the flow by melting snows on the mountains of Colorado, Utah, Wyoming, Idaho, and Northern Arizona, takes weeks to reach the delta lands.

Peering into the future with prophetic vision, Dr. Wozencraft was the first to realize that the desert could be made to blossom. From 1853 he devoted himself to the task of winning others to this view. In 1859 he turned to the State Legislature for assistance, and received a grant of all the State's interest in that portion of the desert now known as Imperial Valley. The Legislature also instructed California Representatives and Senators in Congress to support a bill ceding 1600 square miles of this territory to Wozencraft and his associates in consideration of its reclamation by water diverted from the Colorado.

The reader will contrast the attitude of the California Legislature towards Wozencraft's project with that of the Victorian State Parliament towards George Chaffey's Mildura proposition. Here is found a typical instance of that American encouragement and Australian suspicion of private enterprise so characteristic of both countries. In each instance the land proposed to be used was regarded as valueless. As we have seen, the Mallee land with which the Victorian Parliament in 1886 parted so grudgingly, although George Chaffey undertook to pay 300 per cent. more than the highest valuation placed on it, was actually a dead loss to the State.

The House Committee on Public Lands in 1860 reported favorably on the Wozencraft bill, but when the Civil War broke out the attention of Congress and public was turned to the greatest crisis which ever confronted the American people. The Wozencraft bill lapsed, and was forgotten by that generation. Dr. Wozencraft's project was decades ahead of its time. Los Angeles in those days had a population of only 2000, and there were probably not more than 12,000 people in California south of the Tehachapi Pass. There was thus no population in Southern California to draw on, and there was no railroad transport. It would have been impossible to settle the desert to any extent without rail facilities to carry the people in and the produce out.*

Various proposals to flood the Salton Sink with water from the Colorado were made after Wozencraft's project was forgotten. The idea was that the artificial creation of an inland sea in portion of the bed of Lake Cahuilla would cause fundamental climatic changes throughout the territory by increasing the rainfall.

In 1892 John C. Beatty, a company promoter (described as of the Col. Sellars type), set out to obtain capital for the desert irrigation scheme, and commissioned an engineer named C. R. Rockwood to make surveys and report on the feasibility of irrigation on the Arizona side of the river. In the meantime

* Dr. Wozencraft's name should be remembered with admiration and gratitude by the people of the United States. He was a man of education and good family. Formerly an Indian Agent on the fringe of the Desert, he practised medicine at San Bernardino for years. It was there he sought to enlist George Chaffey's interest in his life dream. He died at San Bernardino in the early nineties.

Beatty formed the Colorado River Irrigation Company. Rockwood based his surveys on a proposed heading on the Colorado known as the Pot Holes, situated about eleven miles north of Yuma and one mile below the site of the Laguna Dam, the costly national project constructed in 1905-7.

Beatty interested a large number of people, from Cabinet Ministers to hotel bell boys, in the stock of his company, but no actual construction work of any kind was done. Beatty's cousin, James H. Beatty, of Canada, put up $30,000 of the $175,000 raised, but it all disappeared in promotion expenses and high living. Finally Beatty was unable to pay the wages of the survey party in the field, and this work was discontinued. Rockwood's salary had not been paid, and he brought suit, which ultimately left him in posssesion of the surveys, instruments and camp equipments.

With those as a basis, he started in to promote the enterprise himself. In 1895, J. H. Beatty, of Toronto, Col. S. W. Fergusson, then of San Francisco and Bakersfield and later of Los Angeles, and Rockwood formed a syndicate and entered into a contract to organize a new corporation. Beatty put up $9000 and Rockwood the camp equipment, which he had seized in satisfaction of his claim for $3500. He stipulated that this claim against the old company should still stand as a liability against the new corporation. Fergusson proposed to put in an option for the purchase at $20,000 of land situated on the Colorado, adjoining the international boundary line, afterward known as the Hanlon Heading, and a contract to purchase at sixty cents an acre some 350,000 acres in Lower California from General G. Andrade already mentioned. This was all the three could put up in beginning a campaign designed to conquer the mighty Colorado.

The California Development Company was incorporated in 1896 under the laws of the State of New Jersey for $1,250,000, and $350,000 was authorized in the form of what was termed land scrip.* Rockwood, Beatty and Fergusson were to have $1,000,000 par value of the stock in equal shares, leaving $250,000 par value in the treasury. Later H. W.

* The provision in the syndicate contract that part of the capital was to be in land scrip was an ingenious method of enabling the promoters to raise money without parting with any of the voting power in the management of the company.

Blaisdell, of Yuma, purchased Fergusson's interest in the syndicate. Dr. W. T. Heffernan became interested in the project by putting up money to keep Rockwood afloat, and for promotion expenses.

Rockwood's $3500 claim against the bankrupt Colorado River Irrigation Company was used to buy a one-third interest in $1,000,000 par value of California Development Company stock, and then again to buy $3500 worth of land scrip. That is to say he sold to the syndicate for $333,333 the property taken by him from the wreck of the defunct Beatty company in settlement of his claim for $3500, but he also made the title to the surveys and camp equipment subject to the lien of $3500, which he still held against it. He sold that lien to his friend and associate, W. T. Heffernan, who sold it in turn to the California Development Company for $3500, and took his pay in land scrip at ten cents to the dollar. This scrip was afterwards received by the California Development Company at its face value for stock in various Imperial water companies at $8.75 a share. That water stock cost the purchaser 87½ cents a share, so the $3500 claim, which had in fact been already paid with $333,333 par value of stock in the California Development Company, was again used to pay the Californian Development Company for water rights for 4000 acres of land.

A. H. Heber, Chicago agent of the Kern County Land Company, of which Fergusson was manager, came into the California Development Company through a proposal to make David Goerz, of Newton, Kansas, a colonization agent and prominent figure among the Mennonites, interested in the colonization side of the scheme. Heber was promised 2500 shares if he could interest Goerz. Soon Goerz had 1000 Mennonite families ready to go out on the desert. Rockwood, however, objected to Heber having so large an interest, and he was given five hundred shares in 1897. Heber then obtained a fourth interest in the residuum shares of the syndicate stock—five hundred shares after the obligations of the syndicate had been liquidated. In 1901 Heber purchased the Beatty interest in the syndicate.*

* The date for the departure of the Mennonite families was so often postponed by the California Development Company that Goerz, in disgust, finally abandoned the project. Heber's work in connection with the Mennonites, which secured him a considerable amount of syndicate stock, was thus of no practical value to the company.

The California Development Company secured an option from General Andrade on a tract of land in Mexico, through which, owing to the great series of sand dunes skirting the western edge of the desert on the American side of the boundary, the main canal to carry the Colorado waters to the desert must flow ; also an option from Hall Hanlon on 318 acres of land on the Colorado below Yuma, a more suitable and much less expensive point of diversion than the Pot Holes.

CHARACTERISTIC SAND DUNES IN THE COLORADO DESERT. A great series of these Sahara-like dunes made it necessary for George Chaffey to construct through Mexican territory, portion of the main Canal from the Colorado to the Imperial Valley.

From 1896 to 1900, spasmodic attempts were made by Heber, Fergusson and Rockwood to finance the company, each and every effort fai'ing utterly, and in April 1900 the company had incurred liabilities of $1,350,000, consisting of $1,000,000 of outstanding stock, and $350,000 of land scrip, interchangeable for water rights at its face value, which had been sold by the company at ten cents on the dollar, in order to get in money for promotion expenses.* Not a spadeful of earth had ever

* This $350,000 of land scrip, issued at 10 cents on the dollar, was afterwards used to buy water stock in Imperial Valley for nearly 40,000 acres. Of the total issued there was sold or exchanged for services rendered (mostly imaginary), $95,000 face value at 10 cents on the dollar—to W. T. Heffernan, $40,000 ; S. W. Fergusson, $14,920 ; C. R. Rockwood, $26,000 ; H. W. Blaisdell, $9600 ; E. C. Blaisdell, $2500 ; W. H. Prescott, $2500.

been turned, nor had any practical work of any nature whatever been done. The company possessed no assets of value.*

This was the position when in 1899, L. M. Holt and Fergusson invited George Chaffey to look into the Colorado Desert irrigation project. All attempts to secure capital for the work had failed. The California Development Company was absolutely without resources, and its promoters, some of whom were hard pressed to obtain funds for a bare livelihood, were about to throw up the sponge in despair.† George Chaffey was its last hope, and, but for his intervention, it would soon have passed with other current promotions into oblivion. The proposal put to Chaffey was that he should construct the canal in consideration of one quarter of the stock. In company with Rockwood, Fergusson, Dr. Heffernan and L. M. Holt, he made a visit of inspection to the desert via the old Butterfield stage road through Lower California to Cameron Lake. After an examination of Rockwood's scheme lasting more than two months, George Chaffey became convinced that it was impracticable, and he declined to have anything to do with it. Rockwood, in despair then returned to New York.

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* Literature issued by the California Development Company, and placed before the House of Representatives Committee on Irrigation of Arid Lands, by A. H. Heber, on March 21, 1904, stated:—"The Company was incorporated in 1896, but no active work of construction was done until 1900."

† In a letter written by Rockwood to Heber on March 16, 1900, we obtain a glimpse of the real financial position of the principal promoter of the California Development Company. Rockwood informs Heber that the cost of "protocolizing" certain documents relating to the Mexican corporation formed to hold the Andrade land would be 675 dollars Mexican, and proceeds:—"The cost of protocolizing the contract of March 6, 1899, between Andrade and the Mexican company simply staggers me, and I do not know what to do. I did not suppose it would cost more than $150 in gold. . . . The $350 is beyond my powers just at present, and I doubt if I will obtain any help from any source; at least I do not know to-day where I will get it from. . . . That Logan is fully impressed with the value of the proposition and desires to finance it I know. . . . I doubt whether he will be sufficiently footloose to take us up before the first of March. I will probably give him until that time as I will be of necessity here until then anyway, but unless he is ready by that time to get into harness, I believe I shall be obliged to drop him, and probably seek some other means of earning a livelihood, as I can't hold out any longer without greater help than I have been able to obtain. The State of New Jersey has postponed application for an injunction until March 20. . . . I think they will give us until the first of July, and, unless something turns up by that time we will probably have to allow the organization to go by the board. . . . If you get your affairs into shape there so that you are making expenses, and see good hopes for the future, I might possibly be glad to join you if you see any way for me to assist you and myself, but that is for the future."

Writing to Heber again on February 24, 1900, Rockwood states:—"I received a letter from Sepulveda, in which he states that the excessive

In December, George Chaffey again visited Yuma with the idea of looking into the possibility of irrigation on the Arizona side of the Colorado, and while there he decided to examine other aspects of the Colorado Desert reclamation scheme, which had since occurred to him. A detailed examination convinced him finally that here was the greatest opportunity for irrigation ever presented to the American people. For three weeks, he disappeared from civilization. In company with an Indian guide, he was exploring the numerous water courses of the wayward river. The hardships suffered on that impromptu exploration of the lower Colorado caused permanent deafness. On his return to Los Angeles he announced that he was prepared to undertake the construction of a canal which, disregarding the Rockwood survey altogether, would follow a course he himself had marked out.

Andrew Chaffey's superior business sagacity foresaw the immense difficulties which surrounded such a scheme, and the practical certainty of crushing financial loss, and he implored his father not to have anything to do with the California Development Company. He was disarmed by his father's appeal, "Let me do one more big thing before I die," and yielded; and so the aeon-long reign of the desert came to an end.

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amount of $675 Mexican, which will be required to protocolize the contract between Andrade and the Mexican company, is necessitated on account of the amounts in gold which are named in that contract. I have written to him pointing out that I think the Stamp Tax based upon those amounts is illegal, due to the fact that the $60,000 in gold named to be paid to Andrade for the second 100,000 acres of land will not be paid because the option on that 100,000 acres expires in March, and we will be unable to take it up.

" . . . . The New York City authorities are jumping on to us for our tax, but I have rendered them a statement in which I state we are doing no business in New York, have no money here, and have no property here. I do not think they will make any trouble, and if they can find anything to collect they will do better than I think they will.

" I am very glad indeed to see that you are so hopeful, and that your prospects are brighter than they have been during the past two or three years. I feel very much inclined to jump this whole business and go into something else, but will stick to it for a month yet and see if I can't bring something to a head through Logan, but it is a pretty heavy burden to carry, as you well know."

CHAPTER XXI

THE DESERT CONQUERED

ON April 3, 1900, George Chaffey signed a contract with the California Development Company, by which he undertook to construct canals capable of diverting a minimum of 400,000 acre-feet of water a year from the river to the desert. The contract provided that the construction cost of the canals should not exceed $150,000, this amount to be found by George Chaffey, who was to have full control of the Company's finances during the construction period, and to become president, manager, and engineer-in-chief of the company.

In consideration of the construction of the canals and of his financial backing, George Chaffey was to receive one-fourth of the entire capital stock, fully paid up and non-assessable, of the California Development Company, in addition to 60,000 dollars in money or in water rights or other securities, this sum not to become due or payable until it could be paid from revenue without creating a debt or levying an assessment. The contract further provided that the first instalment of water need not be delivered until the California Development Company had sold 50,000 shares of water stock.*

The contract authorized the formation of a land company, afterwards named the Imperial Land Company, to carry out the work of colonization, so that the entire time and energy of George Chaffey might be devoted to building the canal system.

With the object of inducing George Chaffey to finance the company, the contract contained two vital misrepresentations : (1) that the California Development Company owned the capital stock of the *Sociedad de Yrrigacion y Terrenos de la Baja*

* This contract was signed by C. R. Rockwood, the then President, and Charles E Hoffman, Secretary, on behalf of the California Development Company, and by George Chaffey. It was ratified for the California Development Company, two days later by C. R. Rockwood, A. H. Heber, W. H. Prescott and Edwin C. Blaisdell.

California, and (2) that it owned land long held and occupied by Hall Hanlon at the Pilot Knob, just above the international boundary line.* The Mexican company had been organized by the California Development Company to hold 100,000 acres of land adjoining the south side of the boundary. That land, and the 318 acres at Pilot Knob, were absolutely essential to the success of the Chaffey scheme, because, owing to the great range of sand dunes twelve miles wide and fifty miles long, extending from the boundary north-westerly between the river and the basin-like depression of the desert, it was considered impracticable to bring the water to what is now Imperial Valley without entering Mexican territory.†

It has been explained that George Chaffey selected Pilot Knob in preference over Pot Holes as the point of diversion. The main canal would, therefore, leave the river on Hall Hanlon's land at a point afterwards named Hanlon Heading, and enter Mexican soil six hundred feet lower down. Conditions which made it possible for George Chaffey to construct the canal at a fraction of the cost estimated by Rockwood, *et al*, demanded that the canal should run roughly parallel for about fifty miles with the international boundary, and re-enter United

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* The text of the contract convicts Rockwood and his associates of this charge. It states, *inter alia* :—

"That whereas first party (the C. D. Company) is the owner of all the capital stock of the *Sociedad de Yrrigacion y Terrenos de la Baja California* (*Sociedad Anonima*), a corporation duly formed and existing under and by virtue of the laws of the Republic of Mexico, and whereas said *Sociedad de Yrrigacion y Terrenos de la Baja California* (*Sociedad Anonima*) is the owner of a large tract of land situated in Lower California in the Republic of Mexico, south of and contiguous to the international boundary line, containing about one hundred thousand (100,000) acres, and extending from the Colorado River on the east to the mountains on the west. . . . Party of the second part (George Chaffey), hereby agrees to accept said position, and act as general manager of party of the first part, and to construct such canals as are necessary for the purpose of *taking water from the Colorado at a point upon the lands owned by party of the first part* in San Diego County. . . . . "

† Many still consider that the great system of Sahara-like sand dunes which lies between the Colorado and the Imperial Valley make it impossible to irrigate the California side of the desert by a canal located solely on U.S. territory. When it was first formed in June, 1902, the Reclamation Service, having millions at its command, conceived the idea of constructing a canal through the ever-shifting sand hills, which make this one of the most inhospitable places on the face of the globe. This is the grandiose scheme now known as the All-American Canal. The estimated cost in 1904, according to W. E. Smythe, who was a mouthpiece of the Reclamation Service in those days, was $10,000,000. The cost has been rising with each new estimate. George Chaffey, who built instead of talking, irrigated the Imperial Valley by a canal which cost one three-hundredth part of this estimate.

States territory, where the twin cities of Mexicali and Calexico, founded by George Chaffey, are now located. The Mexican land through which the canal must pass was owned by General Andrade, and the California Development Company, through the Mexican Corporation, had secured an option over 100,000 acres of this land. Ownership of the Andrade property and of Hall Hanlon's land was the *sine qua non* of the whole scheme.

George Chaffey impulsively and trustingly signed the contract with Rockwood, assuming the truth of the statements contained therein. The books and papers of the California Development Company were, at that time, in Jersey City.* It was not until June, after work had been commenced, and he was fully committed to the project, that he became a director of the California Development Company, and it was then he made the startling discovery that it did not own the Mexican land, and that its option on the Hanlon Heading site had expired. He further learned then that the company had been unable to pay its annual tax to the State of New Jersey in 1899, and that the Attorney-General of that State had begun an action to forfeit its charter.† The position was that at the period when he had been induced to put his money into it, the company was actually in the throes of dissolution, and those connected with it were on the verge of abandoning the whole enterprise.

The contract for the purchase of the Hanlon Heading for $20,000, on which $1000 had been paid, had lapsed, and Hall Hanlon was under no obligation to sell to the California Development Company. General Andrade had not sold, nor was under any obligation to sell his land to the Mexican corporation, nor to transfer the stock of that corporation to the California Development Company.

The company was thus absolutely bankrupt, and without resources of any kind in the spring of 1900. Its legal existence

* George Chaffey had asked to see the books before he signed the contract, but he was solemnly assured that everything was as represented. He learned later that the books could not be produced because the company's agent in Jersey City declined to release them until $200 due to him was paid.

† The California Development Company owed the State of New Jersey a tax of $1000. Rockwood had secured a postponement of the forfeiture suit pending the Chaffey negotiations in the expectation that as soon as the deal was closed, George Chaffey would be so committed that he would have to pay the tax to save the company.

was about to be blotted out, and nothing could have saved it but for George Chaffey. It was his money which released the books, paid the State tax and secured the Hanlon* and Andrade lands. Had George Chaffey known the facts relating to the condition of the company; had he imagined that the vital options had expired, he would certainly have left the California Development Company to its fate, and Rockwood's interest in the reclamation of the desert, acquired, as we have seen, by the juggling of a debt of $3500, would have been obliterated together with that of Heber and his other associates.

It would have been a simple course for George Chaffey to have formed a new company to secure the rights and property that he saved for the California Development Company. He could then have built the Imperial Canal without the liabilities of the California Development Company hanging like a millstone around his neck.

Having signed the contract, however, he felt himself committed to seeing the scheme through, and so the Imperial Canal was constructed under the auspices of the California Development Company, but George Chaffey had to pledge his personal credit before his work was completed.† He had not only to find the money for the main canal, but advance money to pay for the distribution system of Imperial Water Company

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* The site of the Hanlon Heading was obtained only by George Chaffey's personal influence with Hall Hanlon. A man named Hunt, subsequently of the California-Mexican Land and Cattle Company, of Lower California, had made an effort to secure that important strategic point, to defeat, it was assumed, the purpose and objects of the California Development Company, but Hanlon declined to trade with anyone but Chaffey.

† A weaker man would have thrown up his contract and washed his hands of the whole affair. But not so Chaffey. On the strength of his representations and because of his reputation for honorable dealing and accomplishment of his undertakings, innocent men and women had invested their little all, and made the great move of their lives upon the Imperial lands. He practically began at the beginning again—secured the Mexican lands and the land for the head-gates on the Colorado River by actual purchase, and freed the charter from jeopardy by payment of the unpaid taxes, thus putting the company upon a sound financial basis. He also accepted a burden of liabilities to the amount of $400,000, principally in the form of scrip, interchangeable for water rights at its face value, which had been disposed of by the earlier promoters of the company at a ridiculously small percentage, every cent. of which had been swallowed up in promotion expenses. Not a spadeful of earth had been turned or any other work done, save the making of the surveys, some of which he had been compelled to abandon on account of the prohibitive expense of carrying them out."—*Heroes of California*, by G. Wharton James (Little, Brown and Company, Boston, 1910.)

No. 1, and in addition, he made advances to the Imperial Land Company for the surveys. He found, from bitter experience, that the California Development Company not only had no credit to assist with the financing of the project, but was utterly discredited. Another untoward circumstance, carefully kept in the background, was the obligation to redeem the $350,000 of land scrip issued at a discount of ninety per cent. George Chaffey had relied on the revenue from the sale of water stock to assist in financing the construction costs, but to his surprise and chagrin the early sales of water stock were paid for with this scrip when he had counted on receiving cash.*

These facts are of fundamental importance in any historical survey of the strange circumstance which resulted in the conquest of the desert virtually by one man, with leonine courage and faith in his dreams of high endeavor. Apart from a filing on the waters of the Colorado of 10,000 cubic feet a second—500,000 inches measured under a four-inch pressure—no practical step on either the engineering or business side had been taken by the company until it came in contact with George Chaffey, and as we have seen, it was unable to even keep its own books out of pawn and to find the trifling sum required for New Jersey taxes.

It was a pitiful situation for an organization presuming to meddle with the course of the mighty Colorado, yet those same men who were in such low water in 1899-1900 succeeded later in convincing quite a number of people that their work and money had created Imperial Valley. Construction of the canal

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* " Its (the C. D. Company's) obligations, aside from its capital stock, were various debts, aggregating a considerable sum, and $350,000 worth of what was called land scrip—issued prior to 1900 at ten cents on the dollar, and dissipated in promotion expenses—which was retired at face value in cash or in exchange for water stock of the various Mutual Water Companies at market price at the most inopportune time, namely, just before the water distributing system was completed in the valley." *A. M. Chaffey's* paper (Transactions of American Society of Civil Engineers, 1913).

" Those who came before Mr. Chaffey had been obliged to play a desperate game. They had handed out the water scrip on a basis of ten cents on the dollar, and now he who was to build, and who had not been cognizant of conditions before he set his hand to the task, found himself confronted with the necessity for redeeming these pledges at their face value, and in meeting this necessity he was hampered at every turn and often grew despondent. People have often wondered why there was not greater profit for the promoters of the California Development Company, and the answer is mainly to be found in the necessity of taking care of obligations incurred in the days when the quest for a builder was on."—*First Decade of The Imperial Valley* (Edgar F. Howe and Sons, Imperial, 1910.)

system, finance, distribution of water by mutual companies, the tri-party contract system for the ownership of water were controlled and directed entirely by George Chaffey without assistance from Rockwood, who, during the Chaffey regime, became engineer of Imperial Water Company No. 1, stationed at Calexico. The tentative surveys run by Rockwood for the California Development Company were discarded as useless, and Rockwood had no part whatever in the plans for canals, gates or any engineering features until after George Chaffey relinquished control.

The principal modification of the Rockwood scheme was that a point near Pilot Knob was made the point of diversion instead of the Pot Holes, some twelve miles higher up.* From Pilot Knob the main canal was carried almost parallel with the river for six hundred feet until it crossed the Mexican boundary line, and thence four miles south to the *barranca* or dry channel of an ancient branch of the river known as the Alamo, which meandered in a westerly direction before turning north-west across the boundary into the Imperial Valley.† The Alamo channel, cleared and enlarged, became for forty miles the main canal of the Imperial system to be. At a point about forty miles west of the Colorado, named Sharp's Heading, the canal left the Alamo and was carried northward over the international boundary into the heart of the desert.

By this work George Chaffey reversed the whole tradition of irrigation works construction. He accomplished for about $100,000 a work presenting more unusual features than any irrigation project undertaken in modern times, and originally estimated to cost $1,000,000. Rockwood's original scheme could never have been undertaken by George Chaffey nor by any other private individual. Chaffey at that period had no means of raising $1,000,000 even if he had been disposed to put this sum into the project, and the previous failures of Rockwood and Heber to secure capital proved there was not the remotest prospect of any other group putting up any sum for such an undertaking.

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* This point was afterwards selected by the U.S. Government as the site for the Laguna Dam.

† There are two river channels running south-east to north-west, which divide the Valley naturally into three sections. These are the Alamo on the east, and the New River on the west side.

The Imperial Valley irrigation project, though not the last great work undertaken by him, marked the apotheosis of George Chaffey's career. Immediately he took control the extraordinary activity on the Lower Colorado, which attracted newspaper correspondents from all over the States, made the whole continent realize that the long-dreamed of conquest of the desert was at hand, and so George Chaffey worked out in the desert, with a whole nation, fascinated by the greatness of the task, but sceptical, not dreaming that within a generation 70,000 United States citizens would be settled on that sand-swept basin.

It was a miracle in their own time, because two years after the contract with the California Development Company was signed, the main channel had been completed, 400 miles of irrigating ditches had been dug, and home seekers were pouring in with the yellow waters of the Colorado on to the desert's dusty face. Out in the desert for months at a time—enduring discomforts undreamed of by the generation born in the valley, George Chaffey worked tirelessly to change the seemingly inexorable destiny of a 1,000,000 acre desert. Foremost among the earliest women pioneers must be mentioned Mrs. Chaffey, whose heroic devotion to duty called her out into the desert by the side of her husband. Her name will ever be a luminous memory in the annals of the Imperial Valley, as in those of the Murray Valley of Australia.

At the point at which the main canal re-entered Californian territory, just below Sharp's Heading, George Chaffey founded and named the twin cities of Mexicali and Calexico. The site of Calexico was the original desert entry taken up by George Chaffey at a dollar and a quarter an acre from the Federal Government, and turned over by him to the California Development Company. He made no private profit from the subdivision.*

The question of naming the new territory to be served by the California Development Company's channels was of urgent importance in view of the desire to attract the largest volume of settlement as early as possible. The word desert, now a misnomer, was the worst possible advertisement for the district,

* Mexicali is now the capital of the ancient Mexican State of Baja California.

calculated to frighten off rather than lure home seekers. The first name chosen was *La Grande*, but owing to the existence of an obscure postal district of that name in another part of California, it had to be abandoned.

On the suggestion of L. M. Holt, who had kept in touch with the Chaffeys during their Australian sojourn, and was associated with them once more, George Chaffey finally decided on the name Imperial Valley, realizing that the project, by creating a new province in its own territory for the United States, was imperial in the truest and best sense of the word. The region was a valley in conformation and in potential productivity. The name found popular favor and became immediately attached to the cultivated portion of the former desert, now about 500,000 acres in extent. Imperial Valley, formed in 1906, is practically the whole western end of what was San Diego County, and embraces an area of four thousand square miles.

The main canal was carried twelve miles north and slightly west of Calexico. Here George Chaffey founded a city which he named Imperial, and intended to become the County Seat of this new centre of population. Later, after the Chaffeys' break with the California Development Company, the amazing city of El Centro was founded. Though Imperial thrived, El Centro grew faster and has become the County Seat of the Valley.

Within little more than twelve months of the signing of the contract, the Colorado water was being delivered at Calexico. The water was turned through the Chaffey Gate at the Hanlon Heading on May 14, 1901.* It was characteristic of the man that this momentous event was announced to the world by George Chaffey in the simplest possible form. He sent the following matter of fact telegram to his son Andrew, at Los Angeles :—

"Ogilby, Cal., May 14, 1901.

"A. M. Chaffey, 244 Stowell Block, Los Angeles.—Water turned through gate at 11 a.m. Everything all right.

George Chaffey."

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* The contract called for the construction of a main canal only. George Chaffey, however, put in a headgate for temporary use. Those who succeeded him in the California Development Company neither put in a permanent structure at this point nor indeed at any other point of diversion.

The news behind that bare statement of fact was that man had at last obtained dominion over the Sahara of the West.*

Marvellous as was the achievement of constructing under the most unfavorable climatic conditions a main canal more than seventy miles long, and of reticulating nearly 250,000 acres in less than two years at a cost one-third below the contract price, and ninety per cent. below the first estimate, this was but a part of George Chaffey's work. The business side of the undertaking presented problems of extraordinary complexity. The main canal on which the settlers of the Valley were to depend not only for irrigation but for the sustenance of human and animal life, passed for sixty miles through a foreign country. The supply of water had to be continuous. Any interruption lasting more than a few days would then, and would now, cause the depopulation of the Valley.

The California Development Company was a water selling corporation, and had no proprietary interest in the lands to be irrigated. These were desert lands within the meaning of the United States law, which permitted every citizen to take up one-half section of 320 acres or less of such land at the nominal rate of a dollar and a quarter an acre. The land in the Colorado Desert was absolutely valueless without water, but as soon as it was certain that water would be provided, it became extremely valuable. It was anticipated by George Chaffey, and events proved him right, that there would be a rush for this cheap land as soon as water was available, and these

* "Financial backing was finally secured in 1900, and that, fortunately, from a man who was a builder as well as a capitalist. George Chaffey, who had already done important reclamation work for two of the provincial Governments of Australia, lost no time in getting to work. His contract for canal construction was entered into in April 1900, and in May of the following year water was flowing upon the desert lands of Imperial Valley. Equal energy was displayed in the extension of the distribution system, and in the brief span of twenty-two months, which covered Chaffey's construction activities, more than four hundred miles of canals and laterals were built. Considering the financial and other handicaps under which he labored, this pioneer builder did a fine, honest job. George Chaffey's sound practicality was a useful balance-wheel alike to the visions of Rockwood and the fervid enthusiasms of the sales department. There is little doubt that if a man of his common sense and integrity could have had a controlling hand in directing the destinies of Imperial Valley during a longer period of its earlier development, a good many serious difficulties would have been avoided." *The Colorado River, Yesterday, To-day and To-morrow*, by Lewis R. Freeman (Dodd, Mead and Company, New York, 1923).

land seekers would be the customers for the minimum of the 400,000 acre feet to be delivered yearly at Calexico.

In order to avoid the hampering and harassing interference of rate-fixing bodies in California, often subject to political pressure, George Chaffey devised the ingenious expedient of selling to the Mexican company formed to hold the 100,000 acre tract in Baja California, through which the main canal ran, all the water diverted as it passed into Mexican territory. The effect was that the water at the point of re-entry into California at Calexico was the property of a foreign corporation and not amenable to control by American rate-fixing bodies. It sold the water by contract to a series of thirteen mutual water companies which, in turn, distributed it to the land taken up for cultivation.

The Mexican company had transferred to the mutual water companies a water right sufficient to irrigate the land to be served in consideration of the issue of all their stock to the California Development Company, which actually owned the Mexican corporation. The California Development Company then sold the individual settler water stock on easy terms, on the basis of one share for each acre held by him. The market value of the water right proved to range from five dollars seventy-five cents to twenty dollars an acre, so that the original settler paid the Government one dollar twenty-five cents an acre for the land, up to twenty dollars an acre for his water right, and in addition paid rates to his Water Company (then, and still, little more than nominal), based on the cost of distribution and maintenance. The individual settler thus obtained at prices averaging well under twenty dollars an acre, land second in fertility to none on the American Continent, together with a perpetual water right attached thereto. To-day 500,000 acres of this land have an officially estimated average value of one hundred and fifty dollars an acre.

The actual colonization of the Valley was undertaken by the Imperial Land Company, an organization formed by George Chaffey in March 1901 for the purpose of attracting settlers, laying out town sites and developing the desert land.

In addition to the supreme advantage of cheap land, of astonishing fertility, the Imperial Valley possessed a climate

View on the main Imperial Canal

singularly adapted for the growth of the highest-priced garden and farm products, a climate not only peculiarly favorable to luxuriance and delicacy of growth, but one which enabled the Valley producer to place his products on the great markets of the East well before his rivals in other districts, thus giving him a virtual monopoly of the peak prices obtainable at the period of greatest rarity.*

These unique advantages, placed before the land-hungry citizens of the United States by an advertising scheme on a scale that would have scandalized the Mildura Royal Commission, attracted to the desert a great migration. It was one of the most amazing colonization movements of the century.† On January 1, 1901, there was not a single white resident of the Valley, with the exception of a party of surveyors. By the beginning of 1904, some 10,000 people had settled in the district, and a year later the population had risen to just on 14,000. There were then seven towns in the Imperial Valley, and about 120,000 acres under cultivation, watered by 780 miles of canals and ditches, all uncemented.

In 1914 the Imperial Valley produced crops worth $10,000,000. In 1924 the 390,000 acres irrigated produced crops of a gross value of $62,400,000, averaging 160 dollars to the acre, and the population of Imperial County was nearly 60,000. Assessed property value had risen from $12,148,180 in 1912 to $46,425,915. In 1925, 65,000 car loads of produce were sent out of the Valley. The average irrigation cost ranged from four dollars seventy cents an acre for alfalfa (lucerne), down to twenty-five cents for cotton, and one dollar thirty-five cents for barley.

El Centro, the County Seat, founded on the naked desert, has a population of 10,000, and is the junction of two railroad systems running at right angles through the heart of the Imperial Valley. There is no town of its size in the United

* Shipment of tender, costly products from the Imperial Valley begins about the time that most farming sections in the United States are beginning to plant.

† "The settlement of Imperial Valley took place more rapidly than any of the men interested in the project had even hoped, and constituted the most marvellous achievement of irrigation in the west up to that date at least, and probably up to the present time." —*Imperial Valley and Salton Sink*, by H. T. Cory, B.S., M.M.E., M.C.E. (John J. Newbegin, San Francisco, 1915).

States better equipped with modern conveniences than this city, raised on a spot in which human habitation was impossible before George Chaffey built the Imperial Canal. There are five other incorporated cities in the desert in addition to nine smaller towns.*

Thus George Chaffey once again builded better than he knew. His work made possible the establishment of the great centre of production and human activity that the Imperial Valley is to-day. During his twenty-two months connection with the California Development Company, he had safeguarded every interest except his own. Those months marked the greatest construction period in the history of irrigation, and towards its close those who had been forced to make place for the builder began to combine to pluck the fruits of his work.

From the beginning there had been friction between the Rockwood combination and the Chaffeys, arising from George Chaffey's knowledge that he had been tricked into having anything to do with the California Development Company. He felt the only course possible was to go ahead with the work and make the best of the situation. As time went on, this friction increased, mainly due to Chaffey's inferior opinion of Rockwood's engineering ability. The first clash arose through the holders of the land scrip presenting it in payment for water stock. Had they succeeded in trading in the scrip at that stage, only 10,000 of the first 50,000 shares of water stock would have realized anything for the company, which needed the money badly for its current expenses. Chaffey insisted that he was not compelled to go ahead until $50,000 had been realized

* In 1926 the Imperial Irrigation District comprised a gross area of 603,840 acres. Imperial Valley products include cotton, corn, alfalfa, grapes, lettuce, tomatoes, strawberries, cantaloupes and other varieties of melons, asparagus, dates, olives, grapefruits, oranges, lemons, milk, pork, beef, sheep and poultry. In 1924, 326,454 fruit trees were planted in the district, and 191,000 were in full bearing. There were then 134,000 head of stock on the Valley farms. In 1925 Imperial Valley produced 18,000 bales of cotton from 34,000 acres. The crop sold at 24 cents a lb., or better. With the exception of five or six weeks every day is a growing day for alfalfa, and six to nine crops are produced a year. The average annual production of hay is six tons an acre.

The total charges in 1924 for water, maintenance, and interest and sinking fund on bonded indebtedness amounted to $6.00 an acre ; the average cost of the same items for the seven years ending 1922 was $7.50. In 1924, 3,078,307 acre-feet were diverted, equal to 27.9 per cent. of the total flow of the Colorado at Yuma.

from the sale of water stock, and that the exchange of stock for land scrip was not complying with the contract. So, the greedy scrip holders had to sit back until the $50,000 had been raised.*

Heber had been associated with Rockwood for several years, and, although a strong believer in Chaffey, whom he had not met until a few months before the signing of the contract, from motives of friendship and personal attachment, threw in his lot behind Rockwood. He proved loyal to Rockwood, even to the extent in after years of minimising the Chaffey achievements, and creating the impression that he and Rockwood had made the Imperial Valley.†

After the incorporation in October 1901, of the Delta Investment Company, organized to market California Development Company securities, the breach between the Chaffeys and Rockwood widened. The California Development Company was thus a craft loaded below plimsoll with liabilities, and carrying a mutinous crew waiting for a chance to scuttle it. Realizing that the position would eventually become intolerable, George Chaffey offered to retire if his interests and those of his friends were purchased. One of the considerations which induced him to make this offer was that on April 3, 1905, the Rockwood party would, under the terms of the contract, reassume control and could change the management and ride rough-shod over the Chaffey interests.

It was a galling position for the man who brought the water to Imperial Valley. When approached by the California Development Company, he could have, and should have, demanded permanent control of the company, which was not in a position to resist such a demand, before putting a dollar into it. As it was, he had secured control for five years only, and it was by no means certain that this would not slip away from him in the meantime. At this period, the anti-Chaffey faction neither had the cash nor was able to secure the backing to buy George Chaffey out; nor would it part with a fraction of its interest. With the assistance of prominent Los Angeles business men, he was able to offer the Rockwood party $150,000

* The Rockwood party held $90,000 of this land scrip, and exchanged it all for water stock.

† Heber and Rockwood quarrelled in 1904.

cash for 3000 shares of California Development Company stock, the money to be used solely for construction work. This offer, which would have averted many later financial difficulties, was declined.

In July 1901, Rockwood threatened to wreck the company by bringing suit to have it thrown into the hands of a receiver unless Chaffey and his friends surrendered control. Heber, taking a step which he afterwards bitterly regretted, joined in the secret conclaves of the Rockwood faction. In August 1901, the Chaffeys offered to sell their interests for $175,000 taking instead of cash, California Development Company bonds and water stock, provided their successors took up for cash notes for $84,000 held by friends of the Chaffeys for money advanced for construction costs. The Rockwood Syndicate, which had employed counsel to search for a legal flaw in the Chaffey contract, offered a business firm California Development stock at thirty-five cents on the dollar in a fruitless effort to close with this offer.

Up to January 1, 1902, George Chaffey was master of the situation. The possibilities of the company were enormous. It owned a huge proportion of the priceless Colorado waters, making it able to supply the cheapest water in arid America, and an income of from $500,000 to $1,000,000 a year was already in sight. The bonded debt of the company was then $500,000.

George Chaffey had joined the California Development Company in April 1900, as President and Chief Engineer, on condition that he was to have sole control for five years. In order to confirm this agreement, he obtained proxies from the largest individual shareholders. These, together with the one-quarter of the stock which he was to receive in consideration of his services, seemed to give him complete control. But he neglected the obvious precaution of having the shares represented by his proxies deposited in trust, so that they could not be transferred.

This failure to safeguard his personal interests lost him millions. After the canal had been constructed, the once worthless stock began to rise, and many holders, finding that it had real value, became anxious to realize, and they did not hesitate. The stock represented by proxies held by George

Chaffey began to pour in for transfer to third parties. Seeing that he would soon lose control, he determined to make the best deal possible with Rockwood, Heber and their friends. In February 1901, the firm of Oakley, Paulin, which had done profitable business in the Imperial Valley, joined temporarily with Rockwood and Heber. Thus strengthened they came to terms. George Chaffey retired, selling out his interests for $300,000, taking payment in various securities which finally realized something like $100,000, or thirty-three cents on the dollar. This represented but a mere fraction of what he should have received. His work and money had given the shares of the California Development Company every particle of value they possessed.

He was succeeded as President by A. H. Heber, who bore the heavy burden of leadership in the trying years that followed, when the United States Reclamation Service launched its dramatic attack on the Imperial Valley, and when the river, breaking through the Mexican Cut, made by Rockwood, all but converted the Valley into a new Lake Cahuilla. The breakaway of the Colorado, which threatened what Dr. Elwood Mead described as the greatest geological change within recorded time, was finally closed by H. T. Cory, the eminent engineer, and author of the paper on the Chaffey achievements in the Imperial Valley, which follows this chapter.

CHAPTER XXII

THE MASTER BUILDER

[Henry Thomas Cory, B.S., M.M.E., M.C.E., is the distinguished American engineer who represented the United States on the Nile Projects Commission formed in 1918-20 for the guidance of the Egyptian and Sudanese Governments. Born at Lafayette, Indiana, on May 27, 1870, he rounded off a brilliant engineering course by taking the degrees of Master of Civil Engineering in 1893, and Master of Mechanical Engineering in 1896. He was professor of civil engineering at the University of Missouri from 1893 to 1898, professor of civil and sanitary engineering 1898-1900; dean of the engineering department and professor of civil engineering at the University of Cincinnati, 1900-03. In July, 1904, he became assistant to the general manager of the Southern Pacific Railroad, and in 1906-7 was in personal charge of operations on the Colorado, which, bursting through the Rockwood Cut just below the International Boundary Line, threatened the Imperial Valley with complete submersion. He succeeded in checking the flow of the river into the Salton Sink, now the Salton Sea, thus saving from destruction the most productive agricultural region of the United States. He was Director of American Foreign Relief at the United States Red Cross National headquarters in 1917-1918, and later became consulting engineer of the United States Reclamation Service on the Soldiers Land Settlement plan. Mr. Cory was in charge of important irrigation works in Spain when the writer visited the United States in 1926. In response to a general enquiry regarding the significance of George Chaffey's work in the Imperial Valley, he was kind enough to forward the paper which forms this chapter.]

THE Imperial Valley project is, in many respects, the largest irrigation venture in the world. It is also in many ways the most interesting, the most spectacular and the most successful. It has been the subject of articles not only in the technical literature of all civilized and many semi-civilized countries, but in popular magazines and periodicals as well. Its history, its development and its high state of cultivation, in immediate

juxtaposition with the desert of which it was once a part, have been featured in numerous cinema films enjoying world-wide circulation. Undoubtedly a larger percentage of humanity knows the significance of "Imperial Valley" than of any other agricultural district which is not at the same time practically a nation, such as the Nile Valley.

Such renown is not surprising. The Imperial Valley is an almost level area, containing about 1,000,000 acres, capable of being irrigated by gravity from a single canal taking water from the Colorado River, which, in turn, is much the most important river in the south-west of North America. This area has a slope averaging about five feet to the mile, from an elevation near the river of seventy-five feet above sea level to 150 feet below sea level. Thus, well over 600,000 of its acres lie below sea level. It is all a part of a cut-off arm of the Gulf of California, from which the water long since evaporated, leaving the old shore line clean-cut and practically continuous.

The maximum rainfall is only about three inches, so that the entire old sea bed was naturally a complete desert, the traversing of which was exceedingly dangerous. The climate is sub-tropical, with shade temperatures of from twenty-five degrees to 120 degrees Fahrenheit. The soil has that exceeding fertility of true deserts.

So much for the physical side. On the human side the interests are as great. Suggestions, ending in nothing, that the area be irrigated from the Colorado River, began in 1853, when the first United States Geologist, Dr. William P. Blake, visited and reported upon the region. Dr. Blake's report was contained in the so-called Williamson's Report on a Railroad Route to the Pacific Ocean. He not only suggested irrigating the region, but saw the danger of diverting the entire river into the old sink, as actually happened in 1905. His exact words were startlingly prophetic :—

"From the preceding facts it becomes evident that the alluvial soil of the desert is capable of sustaining a vigorous vegetation. If a supply of water could be obtained for irrigation, it is probable that the greater part of the desert could be made to yield crops of almost any kind. During the season of high water, or the overflow of the Colorado, there would be little difficulty in irrigating large areas in the vicinity of New River and the lagoons. By deepening the

channel of New River, or cutting a canal so low that the waters of the Colorado would enter at all seasons of the year, a constant supply could be furnished to the interior portions of the desert. It is, indeed, a serious question whether a canal would not cause the overflow of a vast surface and refill, to a certain extent, the dry valley of the ancient lake."

All of this prophecy one may say, came true, even that in the last sentence. In 1905, nearly three years after George Chaffey had severed all connection with the enterprise, an inexcusably risky by-pass was dug around the diversion headgate at the river, and soon thereafter the entire river was diverted into the old lake bed. This had spectacular results.

On the largest scale witnessed in historic times, intense geological action took place. Within a period of nine months, two channels cut back from the old lake bed, averaging fifty feet deep, 1000 feet wide, and with a total length of forty-three miles. The rushing waters cut out and carried away 500,000,000 cubic yards of earth, about four times the volume excavated in the Panama Canal. Also, a lake was formed in the bottom of the so-called Salton Sink, now known as the Salton Sea, which at its maximum size was fifty miles long, ten to fifteen miles wide, and had a water surface of 445 square miles, and a maximum depth of seventy-five feet. With the exception of Lake Michigan and the Great Salt Lake, it was the largest body of water lying wholly within the United States. It submerged forty miles of the southern transcontinental railway. Such tremendous geological activities usually take centuries, and they naturally attracted world-wide scientific and popular interest.

Equally widespread attention was shown by engineers in every quarter of the globe, to the unprecedented rediversion works—throwing a dam across an alluvial river 2500 feet wide, thirty feet deep, carrying as much as 30,000 cubic feet per second, with a final head of fourteen feet against it. After several failures, each leaving conditions much worse, this drastic treatment was undertaken as a last resort. Upon its success or failure hung the salvation or the complete inundation of all the old sea bed of over 2000 square miles. Finally this dam was completed by adopting heroic measures and spending well towards $1,000,000 in a few weeks, and the Colorado was rediverted into its old channel and sent on

its way to the Gulf of California. Such a battle with natural forces, upon the results of which depended the re-creation of an inland sea of past geologic ages or safeguarding a project now having a population of over 70,000 people and property value of $46,500,000, had a wide appeal to all men with real blood in their veins.

This was the Imperial Valley Irrigation Project, which George Chaffey was implored to examine. This he did thoroughly. He was impressed by the tremendous possibilities, and also by the problems involved in its exceptional magnitude, especially that of colonization. Fortunately he found practical solutions, exceedingly ingenious and, as after results have demonstrated, successful. On April 3, 1900, he signed a contract to finance and construct the essential irrigation works. This he did within the space of two years. In all the circumstances this was quite as notable a feature as any other of this curiously interesting project. In effect, George Chaffey actually assumed complete direction of and complete responsibility for carrying out this Imperial Valley project, and to do in a short time what had been proposed vaguely for half a century. In this he acted with such decision and energy that he fixed and determined the lines of its development irrevocably ; so wisely that its success has been phenomenal in spite of mistakes made after he severed all connection with it, so many, so grave, and often so inexcusable, as to assure disaster to any ordinary enterprise. Formulating and founding so vast a project on such sound lines that it could withstand such strains is indeed a notable achievement. Stronger words could properly be used. Furthermore, it is rare for one man to have a keen insight into both the engineering and the human side of so complex an enterprise.

George Chaffey's most important contribution on the engineering side was devising a way to do with the relatively small amount of capital it was possible to secure for such a "wild-cat" proposition, what other men, with one exception, had estimated would cost millions of dollars. One of those other men was Dr. William P. Blake, and his ideas were most vague, as shown by the quotation already given, and of which Mr. Chaffey never heard until years after. Compare this quotation with the words of Mr. Chaffey :—

"I saw a way to accomplish the object" (carry 400,000 acre feet of water per annum from the Colorado River into the heart of Imperial Valley), "with the means at my command, by disregarding the Rockwood survey altogether, adopting another line by which the bank of the canal would be made to serve as a levee to prevent the flood waters of the Colorado from finding their way into the Alamo, and utilizing many miles of that channel for the main canal."

On the human side, Mr. Chaffey's work was, if possible, even more significant and far reaching. He developed the plan of a number of independent, mutual water companies, each covering a definite, moderately-sized area, and completely unrelated to each of the other mutual water companies, excepting only that each of them obtained water from one and the same water wholesaling company. This water company was to own only the diversion headgates and transmission canal leading therefrom to the points of intake of the several mutual water companies. By this ingenious arrangement, Mr. Chaffey sagely planned a completely democratic management for each of the several moderately-sized mutual water companies, a thing which experience has shown essential for American temperaments, if expensive and destructive litigation and antagonisms are to be avoided. On the other hand, the vitally necessary diversion works and main canal, he arranged to be controlled by substantial men of capital, and a technical staff free from politics and demagogism. Each of the mutual water companies might do, indeed, did do, many foolish and ill-advised things, but as the landowners did it themselves by a majority vote, so dear to the American heart, they could not complain of anyone else. Furthermore, foolish policies could not lead far enough astray within the single year that each mutual water company board of trustees was to serve, to be vital or irretrievable. In no event could one mutual company harm any of the others in any possible way. That is to say, the ill effects of democracy in a business venture were thus strictly localized and limited to but the one company involved.

Now there are three unusual and very important features of the Imperial Valley project which have not yet been mentioned. The first of these is that within it irrigation is carried on every day in the year. The minimum water demand and

use in January is about one-fourth the maximum demand in August. This is due to the climate. The second is that there are no wells of potable and live-stock water more than a few miles from the Colorado River, so that almost the entire Imperial Valley is completely dependent upon irrigation canal water for human and animal use. This is due to the geological formation of the region. It is a very grave matter, for it means that the main water supply dare not be interrupted for even a single day without long advance notice, and even then for only a couple of days at most; there is no season of non-use during which to effect repairs or changes. So far as is known no irrigation works had ever been suggested, let alone completed, with anything like such a criterion of reliability.

The third is that the practical effect of the jealousy of United States and California governmental agencies made it necessary to divert water from the Colorado River a few hundred feet below the boundary line between the United States and Mexico. This was done by virtue of a permit issued by the Mexican Government. Most of such diverted water is used in the United States many miles to the west. The transmission canal runs nearly fifty miles through Mexico, because there is a line of shifting pure sand hills a mile or so west of the river which extend down into Mexican territory so that the main canal must turn to the south of such effective barriers to canal construction and maintenance. Only after completely skirting the south end of such sand hills can the main canal turn north again and re-enter the American portion of the great Imperial Valley.

Mr. Chaffey saw clearly that a democracy of water users, or even a board made up of either elected or appointed representatives of the several mutual water companies, could not be entrusted with the great irrigation works, which simply must afford uninterrupted service year in and year out, and were also international in character. He really assumed grave responsibility in fathering such an enterprise, but he so arranged the conditions to afford the maximum chances of success, and to reduce to such a minimum the possibilities of failure that not for a single hour has the main canal been waterless. The final arrangement adopted, and which proved so completely successful in practice, was naturally attacked in the courts. Water right litigation is as inevitable, universal and popular in

arid and semi-arid America as bull fighting is in Spain. At the end of it all the Supreme Court of California upheld the plan almost *in toto*.* Because of all these facts, such arrangements merit being outlined in some detail ; they will interest not only irrigationists and students of political and social institutions, but general readers as well.

A fundamental factor was that the lands in the American part of the Imperial Valley belonged to the National Government, and titles to them could only be secured in three ways : first, by residence thereon for five consecutive years, and payment at the end of the period of $1.25 per acre (limit of homestead 160 acres) ; second, by filing upon, obtaining an adequate supply of irrigating water for, and actually irrigating all the land applied for up to 320 acres ; and third, by buying and locating upon a definite piece of land so-called transferable "land script," issued by the National Government to railways as construction subventions, for purchase of settlers' lands within areas made into National Reservations, etc. The price of land script has been increasing for many years, and at the time in question was too high for use except for town sites and strategic points. Canal rights of way over publicly-owned lands were secured by simply filing requests accompanied by maps, with the National Government.

It was essential that the lands, which would surely be rapidly filed upon by settlers, should share the costs of the diversion works and transmission and distributing canals. Experience up to that time was that private or quasi-public irrigating systems were generally unprofitable in America for several reasons, litigation being an important one of them. However, with the title to the lands vested in the Government, settlers on them could create no valid liens upon them to secure obligations of any sort.

Therefore, the form of organization adopted was that of an ordinary corporation, a limited company, having as many shares of capital stock as there were acres within definitely set forth boundaries. Each share of stock carried with it the right to buy water from the corporation itself, or mutual water company as it was called, upon such terms and conditions as the democratic management of that water company might

* In the case Thayer v. California Development Company. *Vide* California Reports, Vol. 164, Pomeroy, 1912-13.

from time to time determine. These shares of stock are locally called "water stock," and are "located" or applied upon the land at the rate of one share of stock to each acre of land. Nowadays in the United States, when such water stock is irrevocably attached to the land as a servitude, it is said to be "appurtenant" to the land. This is a usual arrangement. Mr. Chaffey was unable to make the water stock "appurtenant" to the lands, because the land titles were usually to be vested in the United States Government for at least five years, and the squatter settlers had not money enough to pay cash for their water stock. Therefore he arranged practically to make the water stock of the entire mutual water company, taken as a whole, appurtenant to the lands taken as a whole, within the boundaries of the area served by the water company —a wholesale instead of a retail location of water stock. This was a very ingenious solution.

Because of such arrangement, and also because of the diversion works and main canal being perforce in Mexico, while the vast majority of colonization was to be expected on American soil, the final arrangement Mr. Chaffey settled upon consisted of a series of tri-party contracts between the parent organization (the California Development Company) organized under the laws of the United States, party of the first part; the subsidiary Mexican Company (*La Sociedad de Riego y Terrenos de la Baja California, S.A.*) organized under the laws of Mexico, party of the second part; and one of the mutual water companies, as party of the third part.

The Mexican company agreed to supply water to the mutual water company "on demand," and at definitely set forth points on the International Boundary Line on the far side (from the river) of the spur of sand hills, for fifty cents per acre foot; the aggregate quantity necessary to deliver under the contract was not to exceed four times the number of acre feet of water per annum that there were shares of capital stock of the mutual water company; the mutual water company each year to order and pay for a minimum of one acre foot of water for every share of its stock sold and located; the parent company to build the distribution system of the mutual water company; the parent company reserved the right to develop and use the water power that might be obtained from the waters running through any of the canals of the mutual water company; at

the end of three years the loss of water due to seepage and evaporation from the mutual water company's distributing system was to be determined, and thereafter payment was to be made for the gross amount of water received, less such percentage of loss so determined ; the mutual water company turned over all its capital stock to the parent company, and agreed to locate it upon and separate it from, any lands within the exterior lines of the mutual water company's district, on request of the parent company ; the Mexican company turned over to the parent company all payments for water received from the mutual water companies on the American side of the International Boundary Line ; and the parent company agreed to construct, maintain and operate the diversion works and transmission canals and such distribution canals in Mexico as might be required by the Mexican company.

The parent company sold the capital stock, "water stock" so called, of the several mutual water companies obtained under these several tri-party contracts, to the settlers. The terms were usually one-sixth cash and the balance in five equal notes payable in yearly instalments, with interest at six per cent. per annum, such notes being secured by a pledge of the water stock purchased. As Mr. Chaffey believed, but few bankers agreed with him, such securities proved good. The right to obtain water in such a country being absolutely necessary in order even to live, was grimly retained by keeping up the payments. With the money thus obtained from "water stock" sales, his own money and credits, and a very little capital he was able to secure from other sources, Mr. Chaffey, through the parent company, built the distribution systems of the several American water companies, and the irrigation works of both the parent and the Mexican companies.* The

* An essential feature of the arrangement were the by-laws of the several mutual water companies. These all provided, in general, that each share of stock represented the right to purchase water for irrigating one acre of land ; that the stock certificate issued should have written on it a full description of the land upon which it was located ; that no stock should be located outside the boundaries described in the mutual water company's articles of incorporation ; that one share of stock and no more should be located on each acre of land, which could be served from the canals of such company ; that owners of stock issued but not located should not be entitled to receive any water, but should, nevertheless, be liable for all assessments, the same as other outstanding stock of such company ; that the shares were transferable ; and that acceptance of a certificate of stock should be considered as a ratification by any purchase of any and all contracts between such mutual water company and the parent and Mexican companies.

land on the Mexican side of the Boundary Line was owned by one man (General Andrade), and water was sold for it in the main canal at several points of delivery, the land-owner building the distribution systems to suit himself.

Under this general arrangement, in connection with a colonizing company to be referred to later, colonization in the Imperial Valley went forward with almost bewildering rapidity. Irrigation farmers from all parts of arid and semi-arid America sold their holdings at good prices, and came to Imperial Valley, attracted not only by almost free Government land and remarkably cheap water stock, but also by the form of organization and methods of procedure outlined.

This arrangement, worked out by George Chaffey, was a notable contribution to irrigation in America, more so than is, as yet, generally appreciated. It was intended, practically, to provide the machinery by which many poor settlers could pool their payments in cash and promises to pay, turn them over to an autocratic and efficient business organization, and have built therewith the needful irrigation works. Such autocratic and efficient business organization had to start things off and provide the money needful until the stream of settlers' contributions could get into action. It also had to construct the works essential to convince intending settlers of the feasibility of the enterprise and its constructions. For this creative and constructive service, such organization, practically speaking, would receive as net profits all excess of future water rentals over future maintenance and operation expenses of the diversion works, and main transmission canals, international adjustments and litigation, the latter as great a certainty almost as interest and taxes.

The practical results of its operations were very satisfactory. It produced a smooth and comfortable relationship between the several parties quite unusual in irrigation enterprises. It caused no unfairness of any importance to any of the parties concerned. The prices paid by the settlers for "water stock" averaged only about $12.00 per share, or per acre, and the rate paid by the mutual water companies of fifty cents per acre foot for the water delivered to them was almost unprecedentedly low.

Because of others' grave doubts as to the rate of colonization which would occur, George Chaffey caused to be formed a

separate colonization company, the Imperial Land Company, which was incorporated March 1900, practically contemporaneously with his joining the enterprise as its combined fiscal agent, executive head and chief engineer. This company agreed to do all advertising, colonizing and selling of water stock, for a commission of twenty-five per cent. of the water stock sales, and the exclusive privilege of town sites. Under this contract, the colonization company plotted and put upon the market five of the twelve towns and cities now in Imperial Valley. This arrangement was also a very fair one to all parties ; the usual commission for such services to-day current is thirty to thirty-five per cent. Mr. Chaffey gave the name Imperial Valley to the region, as is indicated by the name of the colonization company. He decided upon it because he appreciated that the enterprise was so large as to result in more of an empire than a project, and because the then current name of the Colorado Desert would not tend to induce settlers to cast their lots there.

After having galvanized into life this tremendous enterprise, determined its lines of both constructional and organizational future development, gotten it under full headway and given it a tremendous momentum, it was most unfortunate that he was impelled to sever all connection with it in February 1902. Unfortunately for all concerned, George Chaffey went into the enterprise without adequately controlling the capital stock of the parent company. The unexpected rush of colonists to the new district indicated undreamed of large and quick profits, and materially changed the viewpoints of those who for years had struggled unsuccessfully to finance the project before finding Mr. Chaffey. Friction arose and Mr. Chaffey and several of his friends who had joined him in the project retired. He had been the controlling and sole constructive factor for just two years, but in that short time he had not only made a reality of a moneyless proposal, but had started it going so rapidly and along such sound lines that its astonishing success could not be averted.

Had he continued as head of the development, the story would have been very different. Without his name and personality, money was difficult to obtain in amounts comparable with the rapid growth. This fact forced taking dangerous risks to supply the water demands. As a direct

consequence the Colorado River got beyond control, and curbing it cost millions of dollars, bankrupting the parent company. Rival receiverships of the parent company under American laws, and of the Mexican company under Mexican laws, produced bitter, general and expensive litigation, and blocked necessary maintenance and enlargement operations on the main canal.

In desperation the people of the American portion of Imperial Valley formed the Imperial Irrigation District, under recently enacted laws of California, and bid in the holdings of the bankrupt parent company. Later this district, classified under the law as a municipality, bought out all the mutual companies in order to secure larger bonding capacity. The final result is a completely democratic or demagogic management in control of everything on the American side of the line, and causing a great deal of friction on the Mexican side.

The present annual cost of irrigation service to land owners is just about three times what it was in the good old days, and must inevitably go still higher. Every organizational step since the Colorado River broke loose has been unfortunate. To avoid the complications, largely imaginary, incident to irrigation works on both sides of the boundary line between Mexico and the United States, the construction of a new main canal to be wholly on American soil, through many miles of shifting sand hills, is being urged. The cost of such a canal would be many millions of dollars, and would increase several fold the present bonded indebtedness of about $50.00 per acre. "Blessings brighten as they take their flight." The bitterly controversial discussion of technical and international features by farmers, merchants and demagogues have resulted in grave animosities, fixed prejudices, and some most unfortunate policies. Many of the land owners each year join the ranks of practically all the "old timers" in sadly wishing for "the good old days of the tri-party contracts" of Mr. Chaffey.

As the years go by, the enormous contributions of Mr. Chaffey to Irrigation in America, made within two short years in the Imperial Valley, will certainly stand out ever more clearly. Even so it is improbable that they will ever be adequately and properly understood and appreciated.

CHAPTER XXIII

THE BUREAUCRATS

THE year 1902 was notable in the history of irrigation in America for the passage through Congress of the Reclamation Act, which initiated Government reclamation experiment in the United States.

The creation by this Act of the Federal Reclamation Service* was marked by a conflict between Government and private enterprise of profound interest to Australia, the stronghold of State paternalism, and to America, the land of dominant individualism.

On its irrigation side, the lesson of this dramatic clash is of direct importance to the millions of dwellers on the arid lands of both countries; but, as throwing light on the broader question of Government versus private effort, it is of universal interest.

We have the spectacular figure of Roosevelt, intoxicated with power, misled by self-seekers and sycophants, brandishing the Big Stick (soon to be raised against George Chaffey), and extravagantly denouncing those who will not bow down before the Reclamation Service. Then there are the bureaucrats of the Reclamation Service, controlling a fund which on June 30, 1905, amounted to nearly $28,000,000,† spurred on to hasty, ill-considered action by the President,‡ and from the beginning

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* When the Reclamation Act was passed, a small corps of engineers, comprising the division of hydrography of the Geological Survey, became the nucleus of the Reclamation Service under C. D. Walcott, afterwards Secretary of the Smithsonian Institution.

† The Reclamation Act set aside for irrigation the proceeds from the sale of public lands in the Western States and territories (now become States). This fund was to be drawn on by the Secretary of the Interior for the survey and construction of irrigation works, the cost to be repaid to the fund in annual instalments, without interest, by the owners of the land benefited. Afterwards other smaller sources of revenue were added to the fund.

‡ "With the Reclamation work as with much other work under me, the men in charge were given to understand they must get into the water if they would learn to swim, and, furthermore, they learned to know that if they acted honestly and boldly, and fearlessly accepted responsibility I would stand by them to the limit."—*Theodore Roosevelt: an Autobiography.*—(Charles Scribners Sons, New York, 1920).

casting covetous eyes on the Naboth's vineyard of the California Development Company ; finally surpassing in ruthlessness any of the great private corporations which came under Roosevelt's lash. The third party in this great drama is the California Development Company, led by A. H. Heber, harassed in every possible way by the bureaucrats, who sought to appropriate the great work begun by George Chaffey. Lastly, there is George Chaffey himself, first looking on as an interested though detached observer, but soon to be drawn into the tumult.

The history of Government intrusion into the realm of business in Australia, and to a lesser degree in America, is a record of failure and loss. In Australia vast sums of borrowed money have been spent with incredible prodigality on various forms of purely experimental socialistic enterprise, and the taxpayers are carrying a huge interest burden with little or nothing in the way of results and assets to show for a large proportion of this outlay. Australia has paid, and is paying dearly, for this competition by Government with private enterprise. In addition, there are crushing annual losses on public utilities inevitably operated by Government, notably the railways, and telegraphs. To the average Australian it is almost unthinkable that such services should be in the hands of private corporations. He is told by the protagonists of State enterprise of the evil wrought by the great railway companies of America, but hears little from them of the Interstate Commerce Commission and the State regulatory bodies, which effectively control in the public interest the railroad corporations.

Flagrant exploitation of the public by the railroad and public utility corporations is no longer possible under present-day conditions in the United States, and competition has undoubtedly proved of immense advantage to the people. Railroads and other powerful corporations to-day have little power and probably less desire to pursue a policy contrary to public interest. The modern American view seems to be this : So long as the State or the nation exercises the taxing power, it can establish its supremacy at any time over all forms, great or small, of business. As private enterprise has proved beyond all question its ability to do things more quickly, efficiently and economically than Government, indeed has made America what

it is to-day. it has earned the right to immunity from the unfair competition of enterprises subsidized by public funds.

The strongly individualistic impulses of the American people have preserved them from the disastrous socialistic experiments that have cost the long-suffering taxpayers of Australia so dear; but the natural corollary of Theodore Roosevelt's castigation of big business interests in the first years of the century was the creation of a form of State enterprise which should show capitalism how to do things.

"The first work I took up when I became President was the work of Reclamation," he writes.* "Immediately I had come to Washington, Newell and Pinchot (F. H. Newell, afterwards Director of the Reclamation Service, and Gifford Pinchot, then head of the Forestry Bureau, afterwards Governor of Pennsylvania), called on me and laid before me their plans for national irrigation. . . . At that time a narrowly legalistic point of view towards natural resources obtained in the Departments and controlled the Government administrative machinery . . . and the habit of deciding whenever possible in favor of private interests against the public welfare was firmly fixed."

Then the Reclamation Bureau came into being with a mighty flourish of trumpets. It was forecast in Roosevelt's first message to Congress on December 3, 1901, when he declared that irrigation works to reclaim and settle the vast arid public domain of the West should be built by the National Government. One or two passages from Roosevelt's message read so strangely in the light of what followed that they must be quoted:—

"It would be unwise to begin by doing too much" (he said), "for a great deal will doubtless be learned both as to what can and what cannot be safely attempted by the early efforts which must, of necessity, be partly experimental in character."

And again:—

"Our aim should not be to reclaim the largest area of land and provide homes for the largest number of people, but to create for this new industry the best possible social and industrial conditions, and this requires that we not only understand the existing situation, but avail ourselves of the best experience of the time in the solution of its problems. A careful study should be made both by the Nation and the States of the irrigation laws and conditions here and abroad."

* *Theodore Roosevelt: An Autobiography.*—(Charles Scribners Sons, New York, 1920).

Under these auspices, borne on a flood tide of platitudes, the Reclamation Bill passed into law. That Roosevelt attached the highest importance to this experiment is shown by the following passage from a letter to Sydney Brookes, the London publicist, on December 28, 1908 :—

" In legislation I succeeded in getting through the National Irrigation Act ; in the development of the semi-arid States, of the great plains and Rockies, I think this achievement in importance comes second only to the creation of the Homestead Act, and indeed in those particular States it is more important than the Homestead Act."—*Theodore Roosevelt and His Time.* By Joseph Bucklin Bishop (New York, Charles Scribners Sons, 1920).

The result, judged by the tests applied to private undertakings, was a monumental failure, a reckless dissipation of the princely reclamation fund and of another $20,000,000 borrowed from the general revenue, and an unscrupulous attack on the Imperial Valley project by officials who went to most extreme lengths to crush what they regarded as a rival.

An Australian observer of the way the public money goes, visualizing a Government Department started off with a fund of £5,000,000, which it could spend without parliamentary or cabinet control, would know exactly what would and what did happen. As Roosevelt euphemistically expressed it :—

" The impatience of the Western people to see immediate results from the Reclamation Act was so great that red tape was disregarded and the work was pushed forward at a rate previously unknown in Government affairs. Later, as in almost all such cases, there followed the criticisms of alleged illegality and haste, which are so easy to make after the results have been accomplished, and the need for the measures, without which nothing could have been done, has gone by."*

In plain language, this means that the Reclamation Bureau, at the bidding of politicians, was forced to set a pace unprecedented even in Australian records of frenzied Government expenditure. Accompanied by the extravagant tendencies inevitably associated with experimental Government enterprise, were an undue haste in launching out into gigantic projects before the necessary data were obtained ; an amazing underestimate of costs and over-estimate of results ; and that disposition to lean on the Government, which has become a

* *Theodore Roosevelt* : *an Autobiography.*—(Charles Scribners Sons, New York, 1920).

marked characteristic of settlers on reclamation projects in America and Australia. The Reclamation Service was politician-ridden from the beginning; but the fault lay rather with those, from Roosevelt downwards, who applied the political pressure than with the officials, who had no option but to follow the lead of the President.

The Reclamation Service began its career with an act savoring more of piracy than of the legitimate functions of a body spending public funds. Conceiving that its grandiose schemes on the Lower Colorado were jeopardized by the water rights established on the river by the California Development Company, it launched a deliberate attack on these water rights, and finally exhausted every means by press, publicity and political interference to destroy the whole Imperial Valley project as a private undertaking. The main excuse for this policy was a professed desire to save the settlers from exploitation by the private corporation; the bait to the settlers was an assurance, afterwards absolutely falsified, that they would secure a cheaper and better service by coming in with the adjoining Yuma project.

Before describing this onslaught in detail, it will be well to examine the early record of the Reclamation Service. On April 21, 1924, President Coolidge sent the following message to Congress:—

"I would respectfully urge on Congress the immediate necessity of revising the present reclamation law.

"The Secretary of the Interior appointed a special advisory committee of six members to study reclamation and make report to him. That committee has completed its work, and has made its report to the Secretary of the Interior, and he has transmitted that report to me. I herewith transmit it to you.

"Many occupants of our reclamation projects in the West are in financial distress. They are unable to pay the charges assessed against them. In some instances settlers are living on irrigated lands that will not return a livelihood for their families, and at the same time pay the money due the Government as it falls due.

"Temporary extensions of time and suspension of these charges serve only to increase their debts, and add to their hardships. A definite policy is imperative, and permanent relief should be applied where indicated. The heretofore adopted repayment plan is erroneous in principle, and in many cases impossible of accomplishment.

It fixes an annual arbitrary amount that the farmers must pay on the construction costs of projects regardless of their production.

" In its place should be substituted a new policy, providing that payments shall be assessed by the Government in accordance with the crop-producing quality in the soil.

" *The facts developed by the special advisory committee show that of the Government's total investment,* $18,861,146 *will never be recovered. There will be a probable loss of an additional* $8,830,000. *These sums represent expenditure in the construction of reservoirs, canals and other works for the irrigation of lands that have proven unproductive. I recommend that Congress authorize the charging off of such sums shown to be impossible of collection.*

" Because of high rates of interest and other agricultural difficulties existing, farmers are often unable to borrow money for temporary relief. . . . .

" More than 30,000 water users are affected by the present serious condition. Action is deemed imperative before the adjournment of Congress that their welfare may be safeguarded.

" The probable loss and the temporary difficulties of some of the settlers on projects does not mean that reclamation is a failure. The sum total of beneficial results has been large in the building up of towns and agricultural communities, and in adding tremendously to the agricultural production and wealth of the country. Whatever legislation is necessary to the advancement of reclamation should be enacted without delay."

CALVIN COOLIDGE.

In September 1923, the Coolidge Administration, moved by the clamor of water users on the Government projects, and by the widespread charges against the Service of extravagance and inefficiency, had appointed a Committee of special advisers on Reclamation to report on the policy, application and operation of Government methods of reclaiming land by irrigation. One of the members of that Committee was Dr. Elwood Mead,* formerly Chairman of the State Rivers and Water Supply Commission of Victoria, Australia, later associated with the

* Dr. Elwood Mead assumed control of the United States Reclamation Service long after the growth of the conditions which called forth the censure of the Fact-Finding Commission. He is conceded by all parties to have brought rare ability and high courage to bear on the task of rectifying those conditions, and the arid States of the West as well as the Australian State of Victoria owe much to his brilliant and public-spirited administration. Dr. Mead has been most kind to the writer in placing information at his disposal and in contributing the Foreword which begins this work. It is but fair to point out that he is in no way associated with the opinions expressed in this chapter, and has neither been consulted regarding it nor has seen the manuscript.

State University of California, now himself head of the Federal Bureau of Reclamation. The report and recommendations of this Committee embodied in an official paper,* transmitted to the Secretary of the Interior on April 10, 1924, contains probably the most comprehensive indictment of Government enterprise ever compiled. Information laid before the Committee disclosed the following startling conditions :

The originally estimated cost of the 28 projects undertaken to reclaim 3,056,426 acres was in round figures, $93,500,000. The net construction cost to June 30, 1923, was $141,787,000 for works capable of irrigating 1,692,700 acres, but actually supplying only 1,202,130 acres with water. Nearly $19,000,000 was irretrievably lost, and there was a probable further loss of $8,830,000.†

Only $15,600,000, equal to eleven per cent. of the net construction cost, had been repaid by settlers.

The average estimated cost per acre of land to be served by the projects was $30.87, as against an actual cost of $83.76 an acre for the area to which the Reclamation Bureau was prepared to supply water, and $117.94 actual cost per acre on the basis of the area actually receiving irrigation.

In every case the acre-cost was considerably above the estimate.

In many cases the charge to settlers per acre was less than the actual acre cost.

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* Document No. 92, 68th Congress, First Session.

† "The Act provides that the users of water furnished by works built under the Act shall repay the cost of building the works, but in computing this cost, interest on the money invested is not included. Since the Government is paying large sums for interest on borrowed money, the cost of this work to the Government includes interest as well as the money actually spent on the work. The amount of this additional cost represented by interest is shown for the work as a whole in Table 1. . . . The annual reports of the Reclamation Service show the 'net investment.' This is the difference between gross expenditures and gross receipts. The 'corrected net investment' given in the tables is obtained by figuring interest at 4 per cent. on the reported net investment for each year, plus previously accumulated interest.

Table 1—Cost of U.S. Reclamation to June 30, 1922.

Reported debits	$171,496,409
Reported credits	41,350,449
Reported net investment	130,145,960
Corrected net investment (4 per cent. interest on annual net investment, compounded to June 30, 1922)	70,706,685
Total cost	200,852,645

"As shown by this table, the cost to the United States to June 30, 1922, has been about $200,000,000, instead of the $130,000,000 reported."—*Land Reclamation Policies in the U.S.* By R. P. Teele, Associate Agricultural Economist, Bureau of Agricultural Economics. (Department Bulletin No. 57.)

Of the operation and maintenance costs, aggregating above $17,000,000, $5,688,000 remained unpaid.

There were just on $40,000,000 of inactive assets.

Three projects had been abandoned.

The ultimate cost of some of the projects was more than the value of the water to the land.

The Reclamation Service had made no attempt to learn by the experience of private companies.

Complaints from water users were widespread, and more than ten per cent. of the 31,792 water users on the projects had filed applications for relief.

Relatively few of the original settlers on the projects then remained on them as water users.

These were the staggering facts with which the Committee was faced. On the production side, the picture was no brighter. The 1,169,100 acres cultivated produced in 1922 crops valued at $50,360,850, of an average acre value of $43.09. The average gross value of Imperial Valley crops for that period was at least $150.00 an acre. But the Economic Survey for the same year reduced the estimated value of Reclamation project crops to $37,280,000. There were 131,194 people living on farms, and 322,650 inhabiting towns in association with the twenty-eight projects, but thirteen per cent. only of the farmers were prospering. The average total income of the farmers ranged up to $2500, but forty-three per cent. of this was obtained from sources other than the farm.

Reviewing its report in the letter of transmittal to the Secretary of the Interior, the Committee pointed out that sufficient accurate information regarding agricultural and economic feasibility had not been obtained upon which to justify the selection of each of the twenty-four projects authorized within four years after the passage of the Reclamation Act. Some of these should not have been undertaken at all. The simultaneous construction by a newly-organized department of so many projects, involving the expenditure of nearly $150,000,000, provided no background of experience as would have been acquired by a more gradual and orderly programme. This huge outlay soon exhausted the fund, and made necessary a loan of $20,000,000 from Congress to keep the work going. Construction in the later stages of many of the projects proceeded

piecemeal. This delay, and irremediable errors in the original locations, increased costs and the burdens of the users, who had to pay construction costs from crop incomes. The construction costs were in almost every instance larger—in some cases several times larger—than the original estimates. One principal cause of this was the inclusion by political pressure of works not provided for in the original estimates. The feeling of farmers that they were called on to pay more than they were told they would pay, and more than they ought to pay, had become a source of constant attack on the Reclamation Service and discontent among water users.

The Committee emphasized this : there had not been a proper scientific consideration of the probable power of a project to enable the farmer to repay construction costs, and to win a living from the irrigated land. While the engineering requirements of the Federal irrigation projects had been adequately conceived, the needs of the farmers had been inadequately met. A fundamental error was made in believing that the construction of irrigation works would of itself create irrigation agriculture. It had been demonstrated that the Government could build engineering structures of the highest quality, but how the farmers on the projects could repay the cost of these within reasonable time limits had yet to be demonstrated. There is to an Australian an only too familiar ring about the following passage :—

> The Reclamation Service has retained the full management of all but two of the projects. This has not been satisfactory. The project management and the Washington Office have become targets for criticism. *A dependence on Federal paternalism has settled down on nearly all the projects, and a corresponding bureaucratic tendency has grown up within the Reclamation Service.* The water users have come to look upon themselves as wards of the Government, a specially favored class with special claims upon Governmental bounty, and the Reclamation Service has been tempted to accept this definition of the water users. Nothing could be more detrimental to the progress of a venture which demands, first of all, individual courage and independence of the people concerned.

The Committee added that the repayment charge, which was the same on all the projects irrespective of fertility, quality and value of the crops produced, was unscientific in incidence. Productivity was the only fair basis for fixing annual payments —the more fertile the soil, the higher should be the annual

charge to the farmer. The present method of repayment could not be met by the projects with lower productive capacity.

The Committee was struck, as indeed anyone would be, with the extreme rapidity of the selection of the projects. Within a year of the passage of the Act, four of these had been authorized. Twenty-four of the twenty-nine projects undertaken were approved during the first five years.

This wholesale selection of projects was due largely to political pressure and partly to the eagerness of the Service to spend the sums at its disposal. The results are being felt in the arid regions to this day. The Service confined its investigations almost wholly to engineering conditions, and ignored those economic and social considerations of prime importance relating to climate, soils, production, transportation and markets. These considerations, the Committee considered, outweigh engineering questions. The haste with which nearly all the projects were began precluded a careful, thorough, exhaustive, scientific survey of the complex conditions surrounding irrigation ventures. The Committee considered this failure very remarkable in face of Roosevelt's message to Congress, in which he not only warned against "beginning by doing too much," but emphasized the social and industrial problems involved.

The selection of a large number of reclamation projects, some of gigantic proportions, almost at the same time, not only diffused the strength of the Service and prevented attention to detail, but deprived it of the opportunity to build on experience. It followed that sufficient care in making estimates of cost was not taken. The Committee found that in almost every project the ultimate cost greatly exceeded the estimates. It was true that added cost was caused by rising prices during the construction years, and often by the inclusion of additional features originally overlooked; but apart from these factors, it was undoubtedly true that estimates for some projects were much lower than were justified, and the ultimate cost was often more than the value of the water to the land. This caused disappointment and distress among the settlers. In 1922 an economic survey made by the Service showed that seventy-nine per cent. of 24,418 farmers had had good experience, and seventy-four per cent. had been successful farmers. The great majority of the settlers had little capital,

but great desire for a home and much courage when they came on to the reclamation projects. The Committee found that in 1922, only thirteen per cent. were prospering, and thirty-one per cent. were just "breaking even." Over twenty-one per cent. were classed as very poor. Thus fifty-six per cent. of all the farmers were unable to make a profit on their agricultural operations.

The non-support through political interference of the project managers in the collection of accounts was found to be an important circumstance. Any drastic action, even though entirely within the law, resulted in the individual affected taking up the matter with his senator or representative in Congress, and, but too often, orders would be issued to a project manager to withhold his hand. This broke down the morale of managers and settlers. The Committee considered that authority to grant relief should be given by Act of Congress only.

Speaking at the opening meeting of the Committee on October 15, 1923, Secretary Work pointed out that reclamation in the West by private enterprise was begun thirty years before the Government started this work, and had largely redeemed the West. Government reclamation should make a comparable showing, relieved as it is from interest charges, the basis of calculation in all enterprises employing private capital.

Making the comparison suggested by Secretary Work, we find that in 1924 the United States reclamation districts were three times greater in area and six times greater in population than the Imperial Valley, but produced only $40,000,000, compared with $37,000,000 produced in the Imperial Valley.

The Yuma project, which adjoins the Imperial Valley, and serves lands on both sides of the Colorado, *i.e.*, in California and Arizona, was authorized on May 10, 1904, and begun on July 19, 1905. It provided for the construction of the famous Laguna Dam, twelve miles above the Hanlon Heading. *This structure was planned simultaneously with the Reclamation Service's opposition to the proposal that the Colorado be declared more valuable for irrigation than for navigation.* The original plans for a canal from the Laguna Dam to the east side of the river were abandoned after $580,000 had been spent. There

are no assets to balance this expenditure, and it is not included in the cost of the water right, fixed at from $55 to $65 an acre in California, and at $75 an acre in Arizona. The cost both of land and water right in Imperial Valley, denounced by W. E. Smythe, on behalf of the Reclamation Service, as an oppressive burden, averaged well under $20 an acre. Smythe claimed that Government control of the Colorado would abolish all water rights, but the cost of construction under the Reclamation Service has imposed a charge on the settlers several times greater than the average cost price charged for a water right in the Imperial Valley. The Yuma Levee system, which cost about $2,500,000, is not charged against the settler; neither has he to provide interest on the capital costs. It is manifest therefore that the charges for water on the Yuma project do not nearly meet actual costs. The auxiliary Yuma Mesa project, which cost $782,000 in 1922, was irrigating only 220 of the 2449 acres for which the Service was prepared to supply water. The few settlers were threatened with bankruptcy by water costs averaging $225 an acre.*

Government bungling in so far as it related to the Imperial Valley, began at the beginning. In 1900, when George Chaffey ordered a re-survey of the region, in order that the settlers could locate their claims, it was discovered that the Government

* Imperial Valley and Yuma Reclamation Project compared. (Yuma figures taken from Report of Committee of Special Advisers on Reclamation. Senate Document No. 92, of 1924. Imperial Valley statistics for 1923, furnished by Secretary Imperial Irrigation District.)

	Yuma.	*Imperial Valley.*
Indebtedness	$9,000,000 (*i. e.*, net amount due on construction costs, June 30, 1923. No interest charged since project authorized in 1904.)	$14,500,000 (Bonds outstanding).
Average indebtedness per acre	$70.00	$26.50
Water diverted, acre feet	546,634	2,121,855
Acres irrigated	55,770	450,000
Value of crops	$2,000,000	$40,000,000
Average crop returns per acre	$49.70	$125
Population	8,900	55,000
Average annual charge per acre	$5.88 (N.B.—No interest on cost of construction has been charged at any stage.)	$5,00 per $100 valuation. (Including operation and maintenance $2.75, bond interest and principal $2.25).
Construction begun	July 19, 1905	April, 1900.

survey was faulty and incomplete. The work had been handed as political rewards to men who had reason to believe that the desert would never be occupied, and that no one would know whether or not they did the work for which they were paid. So part of the desert had not been chained. The greater part of this territory was supposed to have been surveyed in 1856-8, but apparently no serious attempt had been made to carry out the work beyond the running in a crude way of the lines around the townships. In 1878 that portion of the desert abutting on the international boundary line was surveyed. This survey was practically correct east and west, but it did not link up with the earlier survey began from the northern end. When the Imperial Valley survey was extended north from the boundary, the whole region for about twenty miles to the north, from the Alamo on the east to the New River on the west, was found to have been incorrectly surveyed. A special Act of Congress was found necessary to repair the effects of this bungling, and the settlers on 250,000 acres of the Valley suffered serious loss by being required to wait for years before their titles were secured to them.* In the meantime they were without security for their loans, and had to pay unreasonably high rates of interest to secure accommodation. It was the story of Victorian Parliamentary dilatoriness in relation to Mildura over again.

In 1902 a sensation was caused throughout the United States by reports issued by two Government experts in which the Imperial Valley soil was declared to be largely worthless and incapable of sustaining population. Late in 1901 the Agricultural Department sent two junior officers into the Valley to examine and report on the desert soils. These were J. Garnett Holmes and Thomas H. Means.† They reported to the Chief of the Bureau of Soils, Milton Whitney, who issued

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* "The surveys of public lands were shown to have been fraudulent, which was bad enough, but the delay of six years in correcting them was infinitely worse."—Extract from Dr. Elwood Mead's contribution to the discussion on *Irrigation and River Control in the Colorado Delta* (Transactions of American Society of Civil Engineers, 1913).

† Only 40 days were occupied in the actual field work, and between October 17 and December 20, 169 square miles were supposed to have been examined—at the rate of 2700 acres or more than four sections a day. Only four borings to any depth were made—one to 12, one to 15, one to 16, and one to 18 feet. Thus were "tested 108,160 acres of land."

the famous Circular "No. 9," on January 10, 1902. During the months that intervened between the arrival of the experts and publication of this report, statements of a most alarming nature, in the form of interviews given out by the Government experts, appeared in the press. The avowed object of these was to warn people away from the Imperial Valley. The credit of the California Development Company, and of the individual settlers, was for the time destroyed, the influx of settlers was suspended, and those already located in the Valley were simply panic-stricken.

The report itself caused a first-class sensation. It stated that much of the land taken up would not produce ordinary farming crops, owing to a high percentage of alkali. Characteristic extracts were :—

"When free from alkali it (the soil of the Imperial Valley) is well adapted to the growth of wheat, barley and alfalfa. This soil is in the main alkaline, and in some places to such a degree as to preclude all possibility of profitable agriculture. Of the 30,000 acres mapped 16½ per cent. has less than 0.2 per cent. alkali ; 21½ per cent. has from 0.2 to 0.4 per cent., while 62 per cent. has more than 0.4 per cent. alkali."

. . . . . .

"One hundred and twenty-five thousand acres of this land have already been taken up by prospective settlers, many of whom talk of planting crops which it will be absolutely impossible to grow. They must early find that it is useless to attempt their growth."

The Government published this report in pamphlet form, and broadcast it over the country. Not only were people cautioned about trying to farm this land, but they were warned that on land which would produce good crops at first, the alkali would gradually rise to the surface and ruin in a few years soil that would at first produce good crops.

Great prominence was given in the newspapers to the question, and thousands were undoubtedly scared away from the Valley.* At a later date the charge was made that this soil report was instigated by the embryo Reclamation Service, for the purpose of ruining the California Development Company,

* "It seems certain that had the territory not been settled in very large measure when these reports were sent out, Imperial Valley would yet be unreclaimed."—H. T. Cory (Proceedings of American Society of Civil Engineers, 1913.)

so that it could control the entire water supply of the Colorado. Certainly the Federal Reclamation Service was not formally instituted until June following the alkali scare, but the officials of the Service made use of it to injure the Imperial Valley. For instance, in a report to the Secretary of the Interior on January 4, 1905, it is asserted by the Director of the Reclamation Service (C. D. Walcott) :—

" Much of the land filed on is unsuitable for cultivation, owing to the large amount of alkali, and other adverse conditions of the soil. The water supply is deficient, owing to poor construction and accidents to the canal system, and although during the Fall months there has been ample water, it appears the people will not utilize it, and from best information, are not planting crops to any considerable extent. Difficulties of handling the silt are very great, and if the Government is to take up the project, it must make enormous expenditures at once to prevent the country lapsing into a desert condition."

During succeeding seasons, the Government soil experts' reports, and not the soil, proved absolutely worthless. Less than one half of one per cent. of the land cultivated failed to produce satisfactory crops, and the alkali decreased from year to year, instead of increasing. Statements put into the mouth of Roosevelt in his message to Congress in January 1907, showed there was no foundation in fact for the alkali scare created by the Government. He said :—

" A most conservative estimate, after full development, must place the gross product from this land at not less than $100 an acre per annum, every ten acres of which will support a family when under intense cultivation. The entire irrigable area is capable of adding to the permanent population . . . at least 350,000 people, and probably 500,000. Much of the land will be worth from $500 to $1500 an acre to individual owners, or a total of from $350,000,000 to $700,000,000."

These figures show how unjustified were Walcott's fears that that the Imperial Valley was in danger of lapsing into its original desert condition.

Public confidence in the Imperial Valley was rapidly returning, when the next blow fell. One of the first steps taken by the newly born Reclamation Service had been to examine the Colorado. In 1903 Arthur P. Davis, hydrographer of the United States Geological Survey, who had charge

of this work, reported that the flow ranged from 3000 to 500,000 second-feet. This maximum proved little better than a wild guess. Davis recommended the construction of four reservoirs to impound 1,600,000 acre-feet on the Colorado. These, with canals and pumping plant, were estimated to cost $22,000,000, making on the basis of four acre-feet to the acre a capital charge of $55 per acre of the area to be irrigated. The Davis Report spoke slightingly of the navigability of the Colorado, stating that wagon transportation would be preferable whenever possible.* The Government officials later unsuccessfully tried to have this report called in and destroyed.

In August 1903, under instructions from the Secretary of the Interior, C. T. Perkins, one of the Reclamation engineers, filed under California State law on 4,000,000 inches of "unappropriated" water in the Colorado. This action established two vital points :—

(1) A filing on the Colorado water, in the opinion of the Department, had legal force.

(2) The Department recognized the legality of other filings because its appropriation notice used the words "unappropriated waters."

It was soon realized that the Department estimates of the Colorado maximum flow were much exaggerated, and it came to be feared that the prior appropriation by the California Development Company of 10,000 second-feet might jeopardize the Reclamation Service scheme. So the Service determined to crowd the California Development Company off the Colorado. This could only be accomplished by destroying its water right. Accordingly, the Government officials circulated throughout the country statements that the Colorado River was a navigable stream, under the jurisdiction of the War Department, the consent of which for the diversions being made for the Imperial Valley had not been obtained. Consequently, the California

* "The river is navigated more or less from the mouth to the Needles by stern wheel boats, which sometimes even ascend to the mouth of the Virgin river. Its navigation, however, is so difficult and precarious as to make it almost useless. At low water the channel is so broad, shallow and changeable that boats are continually running aground – sometimes being nearly a week in advancing ten or fifteen miles. In times of high water, the swift current greatly impairs navigation. Whenever wagon transportation is possible this is preferred to the river."—Extract from the Davis Report.

Development Company's filings had no legal basis, it was claimed. This statement, put forward with the *imprimatur* of Government authority, paralyzed the credit of the company, and created consternation among Imperial Valley settlers.

The insincerity of this contention is demonstrated by the Reclamation Service filings already mentioned, and by Davis's proposal to build four dams across the river. The Reclamation Service has since spent about $10,000,000 on the Laguna Dam project at Yuma, a few miles above the original diversion made by George Chaffey. The navigability of the Colorado was a mere technicality, a legal fiction used to injure the California Development Company, to frighten the settlers of Imperial Valley into believing they had no water rights, and that the only alternative to abandoning their holdings was to join the Yuma project.

The startled Imperial Valley community was led to believe that the California Development Company had never possessed any legal right to Colorado waters, but that if they would stand behind the Government and accept its scheme, involving the construction of a covered canal through some twelve miles of sand dunes, all would be well. Many settlers were stampeded into accepting this view of the situation. The California Development Company was prepared to capitulate before the Big Stick, and, after months of discussion, settlers and company agreed to sell the Imperial Canal system to the Reclamation Service for $3,000,000. International complications, however, spoilt the unscrupulous scheme of the Reclamation Service. The main Imperial Canal ran for many miles through Mexican territory, and it was discovered that the Service could not legally purchase a canal system located on land over which the United States had no sovereignty. The deal thus fell through.

With its credit stopped, cultivation suspended, and water running to waste, the California Development Company took the only possible step. It appealed to Congress to confirm the water rights of the company and settlers. The Reclamation Service strongly opposed this move, and the relief asked for was denied. The bill* introduced by Representative Milton J. Daniels, was referred to the House Committee on Irrigation

* A bill for legalizing the appropriation and diversion of water from the Colorado River for irrigation purposes.

of Arid Lands, which took it into consideration on March 21, 1904.

At the outset Heber realized that in view of the relentless opposition of the Reclamation Service, working in conjunction with the Department of Justice, it would be impossible to get the bill passed. He then offered to abandon it, and appealed for a bare three-line declaration from Congress that the Colorado was more valuable for irrigation than for navigation. The refusal of the Government to state formally this manifest truth was in effect a denial of State rights. There never had been any navigation of importance on the Colorado. The experience of those bold enough to challenge the dangers of foaming rapids and treacherous tidal bore gave full evidence of the unnavigability of long stretches of the Colorado, but there was no possible doubt of its value to California for irrigation. Thus the National Government, by refusing to abandon the legal fiction that gave it the merest shadow of a right to control the Colorado waters, set aside the undoubted rights and interests of the State of California. That the navigability issue was a sheer technicality was admitted under pressure by protagonists of National irrigation as well as by leading politicians.* The declaration asked for by Heber in effect would have removed the Colorado from Federal and put it under State control.

Describing the ruinous effect of the Reclamation Service's attack on his company, Heber told the Committee that the bankers to whom the company applied for accommodation said to him : " You get Congress to declare that stream is not navigable and you can have all the money you want."

People familiar with the curious mental attitude of many water users towards those financial obligations to those who provide the water, would naturally expect to learn that the cry for free water was raised in the Imperial Valley. W. E. Smythe, who appeared before the Committee as the mouthpiece of the Reclamation Service, had spent some months in the Imperial Valley stirring up a free water agitation comparable with that of Mildura. With eloquent pen and voice he had

* W. E. Smythe stated (p. 79 of official report of the Committee's sittings) : " It (the Colorado) is navigable only in a technical sense." Hon. Theodore Bell, afterwards Governor of California, stated (p. 91) : " We can control it (the Colorado) . . . under the fiction—which is only a fiction—of the river's navigability."

induced many settlers to believe they would get free water from the Reclamation project at Yuma, pointing out that settlers on Government projects had no water rights to buy, and no interest to pay on the capital cost of the works. The farmers were led to believe by Smythe that if the Government could control the Imperial Valley they would get free water.

This feeling naturally increased the difficulties of the California Development Company. Taxed before the Committee by Heber with stirring up this agitation, to further the designs of the Reclamation Service, Smythe gave an evasive denial, which was a tacit admission of the charge. He justified his opposition to the California Development Company on the ground of being opposed to "monopolistic control" of water, mentioning as an injustice and a burden on the water users of the Imperial Valley that they had to buy their water right. It has been seen that the original total cost of land and water right averaged well under $20 an acre, but in the neighboring Government project at Yuma the cost of water rights has ranged from $55 to $66 an acre. The project cost of water rights in Arizona in the Yuma Valley was fixed at $75 an acre. The cost of water on the Reclamation Yuma Mesa project reached $200 an acre. Smythe spoke of the Imperial Valley settlers getting water "at a terrible price," but it now proves to be cheaper than that provided by any Reclamation Service project.

Smythe showed the hand of the Reclamation Service when he advocated before the Commission "Government ownership of the Imperial system to use it as the nucleus of a magnificent system of public works on the Lower Colorado." He said the object of acquiring the Imperial scheme was "to get rid of opposition." The Reclamation Service contemplated on the Colorado "its very greatest undertaking." Giving as his reason that the water would be handled under one experienced management to far better advantage, he claimed that the National Government only should control the waters of the Colorado.

Desperate at the unyielding antagonism of the Reclamation Service, Heber made a passionate declaration which had results of the greatest moment. He told the Committee that rather than see the people of the Imperial Valley deprived of the

water for which they had paid, he was prepared "to lean on the Mexican Government" and, abandoning the Hanlon Heading, divert the water, not in United States territory, but immediately after it passed into Mexico.* He had interviewed President Diaz, he said, and holding out the inducement of irrigating Mexican land, had all but come to terms. His chief engineer, Rockwood, was in readiness to make a cut on Mexican soil to link the river with the Imperial Canal. "*It is my earnest desire to worship at our own altar and to receive the blessing from the shrine of our own Government, but if such permission is not given, we shall be compelled to worship elsewhere.*" he declared.†

The Committee's report recommended that the Secretary of the Interior investigate the questions involved in the use of the Colorado, and recommend any legislation considered necessary. Acting on this resolution, Director Walcott reported, on December 24, 1904, that control of the Colorado by the Reclamation Service was essential; that the river being navigable, water appropriations under State law were not valid, and suggesting legislation to preserve navigation interests and to make the consent of the Secretary for the Interior necessary with respect to future appropriations.

The declaration asked for by Heber was not made, and the fateful decision, which all but obliterated more than 1,500,000 acres of Californian territory, was taken.‡ On June 10, 1904, Heber entered into a contract with the Mexican Government for the diversion in Baja California of water from the Colorado into the Imperial Canal, undertaking that if required, one half of the water diverted would be used on Mexican soil. In September-October, 1904, on instructions from Heber, the Rockwood Cut, about four miles below the international

* Except by agreement with Mexico the United States Government had no control over Colorado water once it had flowed across the boundary line.

† Official Report of Hearings by the Committee on Irrigation of Arid Lands on the Daniels bill to legalize the diversion and appropriation of water from the Colorado for irrigation, p. 87.

‡ "When the water title was attacked by the Interior Department, it was the duty of the State to defend its authority to grant titles and to protect this struggling project, and the unfortunate settlers. For this protection, however, they had to look to a foreign country, and one wonders what would have been the result if Mexico had been as indifferent as the United States. This attack on the water title by the United States seems to have been morally wrong even if legally defensible."—Dr. Elwood Mead (Proceedings of American Society of Civil Engineers, 1913).

boundary line, was made. The imaginary line, which divided California from Lower California, thus again proved a complete barrier against the Reclamation Service designs.

Taking the water from the Colorado in Mexico instead of in California, seemed to Heber the only alternative to the destruction of the California Development Company, but it had most spectacular and catastrophic results. No attempt was made to put down a head gate,* or to control the flow into the Imperial Canal, as had been done by George Chaffey at the Hanlon Heading. Unexpected winter floods suddenly widened the gap to one hundred and fifty feet and more, and almost before it was realized what had happened the Colorado was flowing through the Imperial Valley into the Salton Sink, which within a few months became the third largest inland body of water in the United States—surpassed only by the Great Salt Lake and Lake Michigan.† The Lake Cahuilla of past ages had again been formed. Unless the break could be closed, and the river returned into its normal course, the whole of that region, comprising the shut-off arm of the Gulf of California, must become submerged and the Imperial Valley, which now sustains nearly 70,000 people, would be to-day many fathoms under water. Much of the area comprised in the Yuma project would have been inundated also, and the "cutting back" of the river through the soft alluvial soil of the delta would have demolished the Laguna Dam.

Although finally controlled by the genius of H. T. Cory, the river took full revenge against those who had presumed to

* The failure to put in a gate at the Rockwood Cut was the cause of all the trouble. "The breakaway of the Colorado at what was called Intake No. 3, need never have occurred in the first place, nor need there have been any great difficulty in closing it once it did occur. . . . The shifty Colorado took quick advantage of every opening offered by unsound engineering and gross carelessness. . . . . Heber, after vainly trying to get a bill through Congress, recognizing the right of the Valley to water from the Colorado, went to Mexico and closed a contract with President Diaz for the use of water diverted on the Mexican side of the line under the provision that one-half of the diversion should be available for future irrigation in Baja California. Then Rockwood made the projected cut, but with few precautionary provisions against possible trouble in the event of an unexpected rise. —*The Colorado River, Yesterday, To-day* and *To-morrow*, by Lewis R. Freeman. (Dodd, Mead and Company, New York, 1923).

† Before the break was closed the Salton Sink, as the residuum of the vanished Lake Cahuilla was called, had been converted into a lake covering an area of 445 square miles, with a length of 50 and a width of from 10 to 15 miles.

interfere with its course. Before it was shut off from the Imperial Valley it had submerged a salt mine, damaged railroads to the extent of $870,000, and thrown out of cultivation nearly 50,000 acres. The expenditure necessary to redivert the river to its former course was about $3,000,000. The breakaway through the Rockwood Cut thus bankrupted the California Development Company, which passed under the control of the Southern Pacific Railroad.

Rockwood's idea when making the cut was that it could be closed without difficulty before the summer floods came down, but he reckoned without the Colorado. The Yellow Dragon immediately began to show its strength. Five winter floods came down, an occurrence without precedent as far as the records went, and the river scornfully swept aside the makeshift dams thrown across in the attempt to close the cut.

The financial difficulties of the California Development Company were at this period accentuated by internal disruption arising from a serious breach between Rockwood and Heber. The Southern Pacific Railroad interests in the Imperial Valley were being jeopardized by the runaway river, and it* was only natural that the California Development Company would turn to it for assistance. E. H. Harriman,† giving America a striking example of public service, interested himself in the question, though advised by his officials to the contrary, and the Harriman organization agreed to advance $200,000, providing the management of the California Development Company was placed in its hands. This was done on June 20, 1905. The railroad officials then had no conception of the gigantic task which lay ahead. They were speedily disillusioned. In July-August, 1905, when the third attempt to

* The famous Southern Pacific "Sunset" route, from Los Angeles to New Orleans, had skirted the Colorado Desert for many years.

† E. H. Harriman, head of the Southern Pacific lines, was the greatest of American railroad leaders, and one of the finest exponents of individual accomplishment ever seen in America. He took over the Union Pacific Railroad when it was flat broke, the common stock selling as low as $3.50 per share, and left it one of the greatest systems in the country, with its stock at fifty times that price. He took over the Southern Pacific Railroad, and had the vision of a great system running from north to south, and, inspired by the success of Imperial Valley, conceived its extension into Mexico where it passes through half-a-dozen potential Imperial Valleys that will inevitably be developed, and are already partially so, in the States of Sonora, Sinaloa and Nayarit.

SUNSET ON THE SALTON SEA
at Salton Station on the Southern Pacific Railroad, 205 feet below sea level.

close the break was made and abandoned, one-third of the Colorado was going down the old channel, and two-thirds were pouring into the Imperial Valley toward the Salton Sea ninety miles away, with a fall of four feet to the mile. The fall to the Gulf eighty miles away, along the former course of the river, was but one foot three inches to the mile. The rising waters of the Salton Sea were threatening the Southern Pacific railroad tracks along the east side of the former "Sink." All interests, including the United States and Mexican Governments, were startled by the menace of a new Lake Cahuilla. The advance made by the Southern Pacific had been expended without result. The situation was desperate, the possibilities appalling.

On April 18, 1905, the world was horrified by news of the great earthquake and fire at San Francisco. While sitting in makeshift offices with the ground trembling beneath his feet, the ruins of a splendid city still smoking around him, with the great business he had built up disorganized, and snowed under by financial demands, Harriman agreed to advance another $250,000 towards saving the Imperial Valley. No more convincing proof of the greatness of the man could be adduced.*

The fourth attempt to close the crevasse was begun in September 1905. This was the Rockwood Gate, completed in April 1906, about the period when H. T. Cory was appointed General Manager and Chief Engineer, replacing Rockwood. The flow down to the Salton Sea during the summer floods of 1906 reached a peak of 100,000 second-feet, and this widened the sixty foot cut through the soft alluvial banks of the river to 2300 feet, and carried away like a match the Rockwood Gate. The position then was perilous in the extreme :—

"In nine months the runaway waters of the Colorado had eroded from the New and Alamo channels, and carried down into the Salton Sea, a yardage almost four times as great as that of the entire Panama Canal. The combined length of the channels cut out was almost 43 miles, the average width 1000 feet, and the depth 50 feet. . . . .

* Immediately the news of the earthquake reached him in New York, Harriman set out by special train across the continent, and placed at the disposal of San Francisco all the resources of the Union Pacific and Southern Pacific. Between April 18 and May 23, the Harriman lines brought into San Francisco free of charge 1603 car loads of supplies at a cost of $445,410, and carried gratuitously from the city 224,069 refugees, whose fares would have amounted to above $500,000.

Rarely if ever before has it been possible to see a geological agency affect in a few months a change which usually requires centuries."*

Immediately after the failure of the Rockwood Gate, a sixth attempt to close the break was made by another construction of a series of rock-fill dams, and on November 15, the flow into the Imperial Canal had been reduced to three hundred second-feet. On December 6, a great flood swept down and within twenty-four hours the old channel was empty, and once more the river was flowing down into the Salton Sea.

This disaster brought home to the high command of the Southern Pacific railroad the magnitude of the task it had undertaken. Seeing no prospect of securing from the California Development Company a reimbursement of the vast sum which would be required if the river were to be controlled, it notified the people of the Valley that it could not advance additional funds without a guarantee of repayment. It was now apparent that unless the crevasse were closed before the floods of next summer the whole region was doomed. The Colorado was then discharging into the Valley 160,000,000 cubic feet of water every hour. Appeals for action by the United States Government in what was truly a great national emergency, poured in on Roosevelt. What he thought of the position may be gauged by this extract from his message to Congress on January 12, 1907, when the last and successful attempt to close the Cut was in progress :—

" If the river is not put back and permanently maintained in its natural bed, the progressive back-cutting, in the course of one or two years, will extend upstream to Yuma, and finally to the Laguna Dam, now being built by the Government, thus wiping out millions of dollars of property belonging to the Government and to citizens. Continuing further, it will deprive all the valley lands along the Colorado River of the possibility of obtaining necessary supply of water by gravity canals.

" The great Yuma bridge will go out, and approximately 700,000 acres of land as fertile as the Nile Valley will be left in a desert condition. What this means may be understood when we remember that the entire producing area of southern California is about 250,000 acres. If the break in the Colorado is not permanently controlled, the financial loss to the United States will be great. The entire

* *The Imperial Valley and The Salton Sink*, by H. T. Cory (John J. Newbegin, San Francisco, 1915).

irrigable area which will be either submerged or deprived of water, in the Imperial Valley and along the Colorado River, is capable of adding to the permanent population of Arizona and California at least 350,000 people, and probably 500,000. . .. . "

Roosevelt acted with characteristic promptness, but he did not throw the responsibility on his Reclamation Service. Nor did it show any anxiety to jump into the breach and assume what was clearly and undoubtedly a direct responsibility. Its interest in the Colorado had evaporated. So Roosevelt dropped his Big Stick and appealed to the man he had denounced throughout the country as "an undesirable citizen," a "corruptionist," and "an enemy of the Republic." Shortly before the Colorado crisis, Roosevelt and Harriman had quarrelled after years of friendship, and Harriman automatically became a member of the Ananias Club.* An investigation into the Harriman lines, believed to have been secretly ordered by Roosevelt, was actually in progress at the time, yet he did not hesitate to appeal to Harriman to do the Government's work.

Pointing out by telegram to Roosevelt on December 19, that the Southern Pacific had spent already 2,000,000 dollars at the Rockwood Cut, Harriman suggested that it was a job for the Reclamation Service. Roosevelt telegraphed back that the Reclamation Service could not act without the authority of Congress, which had that day adjourned, and that an arrangement with Mexico would be necessary before the Government could move. Reclamation engineers were available for consultation, and that was all the aid the Government could offer. The danger, Roosevelt pointed out, was due to the action of the California Development Company in making the cut in Mexican territory, and action should be taken by the company without an hour's delay.

Faced with the prospect of spending an additional million dollars without any certainty of reimbursement, Harriman threw the resources of his great organization into the epic

* "The Ananias Club" was a jocular phrase coined by American journalism to describe those who some time or another had ventured to disagree with Roosevelt. Anyone who dared to do this became *ipso facto* "a liar", and was denounced as such by Roosevelt through the press. So many prominent people incurred Roosevelt's displeasure that it finally came to be regarded as something in the nature of a compliment to be a member of 'The Ananias Club.'"

fight against a seemingly uncontrollable river. He issued orders that the break must be closed "at all costs." Given *carte blanche*, H. T. Cory set out to work, and the great outpouring of energy, material and money carried out under his direction averted the disaster with which the Valley was faced.

After a prodigious accumulation of material had been dumped into the river, the break was finally closed. On February 10, 1907, the Colorado was flowing back in its former channel. During the two weeks required to dump the 82,200 cubic yards of rock used in closing the break, six hundred men were working in ten-hour shifts.*

H. T. Cory's achievement was one of the engineering triumphs of the century, but without the facilities possessed by the Harriman lines the break could never have been closed. Within fifty-two days of Roosevelt's appeal to Harriman, $1,600,000 were spent on the Colorado, making the cost of the Rockwood Cut above $3,000,000. Harriman, by providing the funds and organization which alone could bring the Colorado under control, had rendered America a notable service.† His reward was ingratitude. He had committed the unpardonable sin of quarrelling with Roosevelt. He received no recognition from the Government for his public-spirited action, and Congress even refused to reimburse his organization. When Harriman died in 1909, it had not received a penny in payment for a national work done at the personal request of the President of the United States.

A relation of these weighty circumstances has been necessary in order that the circumstances which led to George Chaffey becoming involved in the controversy with Roosevelt, which is the subject of the next chapter, may be readily understood.

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* During the final effort which followed Roosevelt's appeal, 1200 ninety-foot piles, 16,000 feet of pine "stringers," and 5765 car loads of rock, clay and gravel were used at the crevasse. The material was brought from distances varying from 60 to nearly 500 miles.

† "Nothing could have been finer than the action of Mr. Harriman. The loan of $250,000, when his time and resources were overtaxed by the earthquake at San Francisco, the providing of more than $1,000,000 for the last hazardous attempt to save the Valley, furnishes an inspiring contrast to the supine indifference and irresponsibility shown by both the State and Federal authorities."—Dr. Elwood Mead (Proceedings of American Society of Civil Engineers, 1913).

CHAPTER XXIV

THE BIG STICK

ROOSEVELT threatened George Chaffey with the Big Stick early in 1907. On January 12, the President sent Congress a message on the Imperial Valley situation. This had been written for him by Reclamation Chief Walcott, the man who, three years before, had forecast that without immediate Government control the Imperial Valley would lapse into its original desert condition. George Chaffey promptly drew the President's attention to the fact that false statements relating to the California Development Company's conduct during the Chaffey regime had been put into his mouth. Roosevelt's response was prompt and characteristic. He transmitted to George Chaffey, without comment, the original document signed by Walcott, on which the Presidential message was based. A notable controversy followed.

The President's message, after outlining the circumstances leading to the Colorado breakaway, severely castigated the California Development Company, and asserted that an improper use had been made of the money received from settlers :—

" The Reclamation Service should be authorized to take steps at once for the construction of an irrigation project under the terms of the Reclamation Act for the lands in the Imperial Valley, and in the Lower Colorado River Valley. The Service should be in a position to proceed actively with the organization of the project and the construction of works as soon as the condition in regard to the protection of the Valley against overflow will justify expenditures for this purpose.

" To accomplish this, the United States should acquire the rights of the California Development Company, and its subsidiary corporations in the U.S. and Mexico, upon such reasonable terms as shall protect the interests of the Government and of water users. The United States should obtain by convention with Mexico the right to carry water through that country upon reasonable conditions,

Most of the land in the Imperial Valley has been entered under the terms of the Desert Land Act or the homestead laws, and title has not passed out of the U.S.* . . . . . The Imperial Valley will never have a safe and adequate supply of water until the main canal extends from the Laguna Dam. As each end of this dam is connected with rock bluffs it provides a permanent heading founded on rock for the diversion of the waters. Any works built below this point would not be safe from destruction by floods, and cannot be depended upon for a permanent and reliable supply of water to the Valley.

George Chaffey, immediately on reading the telegraphic reports of Roosevelt's message, sent the following letter to the President :—

To His Excellency Theodore Roosevelt,
President of the United States,
Washington, D.C.

Los Angeles, California,
January 15, 1907.

Sir :

The telegraphic dispatches credit your message to Congress on the subject of the Colorado River Break with the following paragraphs :—

" The money thus obtained from settlers was not used in permanent development, but apparently disappeared, either in profits to the principal promoters or in the numerous subsidiary companies which to a certain extent fed upon the parent company or served to obscure its operations. The history of those deals is so complicated that it would require careful research extending through many months to unravel the various ways by which the money and securities have disappeared. In brief, it is sufficient to state that the valuable considerations which were received from water rights were obviously not used in providing necessary and permanent works for furnishing water to the settlers.

" The California Development Company began its work by making representations to possible settlers of the great profits to be derived by them by the taking up of this land. The claims were not only extravagant, but in many cases it appears that wilful misrepresentations were made. Many of the operations of this company tended to mislead uninformed settlers. At first the

* Numbers of the settlers were unable to secure titles to the land they had lawfully taken up, because of the fraudulent original surveys. They were still waiting for Congress to redress this hardship.

success of the company was great, and it disposed of water rights at prices sufficiently large to obtain fair revenue, either in cash or in securities of value.

"The whole enterprise and the spirit of those promoting it, as well as of the numerous smaller speculators attracted to the subsidiary offer, was of the most visionary character. Actual investments have been small compared to the estimates of wealth which seemed possible of realization. The company entered upon its construction work with large plans, but with inadequate capital. All of its structures for the control and distribution of water were temporary in character, being built of wood and of the smallest possible dimensions. Through the efforts thus made a large amount of land was brought under cultivation, and at one time it was reported that over 100,000 acres were being more or less irrigated."

I take it that the foregoing refers, in large part at least, to the period of the management of the California Development Company, from April 1, 1900, to February 12, 1902, when I was its President, for while the company had been organized four years prior to 1900, it had done in that period no work of any kind, and it was during the period of my management that the canals were first built, and the enterprise was given tangible form and secured tangible results. I so assume because those guilty of making the cut in the river in 1904 have sought to shift responsibility for their shortcomings to me, upon the pretext that the original canal was improperly built, and because subsequently the Southern Pacific Company, for purposes of its own, has made but has yet not established, sundry charges of early mismanagement, and industriously sought to procure their general acceptance by repeated iteration.

While not altogether persuaded that the foregoing paragraphs are in your opinion a material part of the message to Congress, nor that Congress will deem the subject matter referred to a relevant matter for inquiry, it is very clearly my duty to enter a respectful but emphatic denial of the statements, inferences and suggestions therein contained. In this connection I am mindful that I cannot hope to modify the popular impressions that are derived from an official statement made by the Chief Magistrate of the United States, but only to persuade you, Mr. President, that there is another side to the story, and, it may be, to suggest to the future historian of the Imperial Valley a line of history and inquiry which he may at his leisure investigate.

Permit me then, with all deference to say :—

(1) That all the money obtained from settlers during the period

of my management of the California Development Company was used in permanent development ; and furthermore, that much more than twice the money so received, was so used and expended.

(2) That the subsidiary companies were organized at a time when the California Development Company had nothing upon which they could feed, and each severally performed its share of the development of an enterprise which in its conception was sufficiently vast and sufficiently novel (the Reclamation Act of 1902 was not then passed) to absorb the energies of them all, along different lines of activity.

(3) That aside from the money received from settlers the one only remaining source of income was the securities in the form of notes and mortgages and bonds of the Company, which were received and issued by it, and which had value only upon the assumption that the enterprise was a sound one.

(4) That aside from the ordinary difficulties experienced in selling the securities of a company embarked in a novel and hazardous undertaking, obstacles well-nigh insurmountable were interposed by officials of the Government of the United States, to wit : the soil experts of the Department of Agriculture, who reported the soil of Imperial Valley as absolutely unfit for agriculture, and gave out to farmers, through the press of the country, solemn warnings against being inveigled by our attempts to colonize the Colorado Desert.

(5) That we who were giving our undivided energies to, and had staked our reputation upon, a great enterprise undertaken by us prior to any Government efforts at reclamation, were by this unfortunate official notion compelled to pledge our personal credit, and to involve every dollar of our private resources in a desperate effort to achieve the success to which we believed the project entitled ; and that so far from doing anything discreditable, we were and are entitled to the greatest credit for the successful engineering and financing of the project in its early days and under conditions peculiarly trying and disheartening.

(6) That the company at all times had enough of these various securities in face value to put in the most permanent improvements, and would long since have been able to do so but for the persistent hostility of certain Federal officials : first the soil experts of the Department of Agriculture, and afterwards and subsequent to my connection with the Company, by officials of the Reclamation Service who, under the protection and with the prestige of their official position, lost no opportunity of discrediting the Development

Company and its water rights, and the soil and prospects of the Imperial Valley, all in direct conflict with the helpful spirit and purpose of the Reclamation Act of 1902, under which they held their official positions ; and at the self same time were themselves engaged in a project to divert the waters of the Colorado to a very much less extensive tract of much poorer land and at a very much greater cost per acre.

(7) That the only extravagant claims or wilful misrepresentations made to settlers in the Imperial Valley were made by Federal soil experts and officials of the Reclamation Service.

(8) That the settlers in the Valley were not misinformed men, or misled by the company, but were and are experienced farmers who have made much money from their holdings from the very first.

(9) That the enterprise was not visionary in character, but on the contrary that the actual accomplishment has surpassed every dream of the original management, and will indeed some day justify the more sanguine estimate of future values contained in a subsequent paragraph of the very message from which the foregoing paragraphs are quoted.

I note also the following paragraph of the Message in the press dispatches :—

> " The first heading of the canal of the California Development Company was made in the United States immediately north of the Mexican border It was found after a time that the heading on the American side of the line did not give a grade to furnish sufficient flow of water, and after headings had been opened at other points without successful results, a cut in the river bank was made further down in Mexican territory. This gave the water a shorter and steeper course toward the Valley. The making of this cut in a bank composed of light soil above a depression such as this, without controlling devices, was criminal negligence. This short cut on Mexican soil was made in the fall of 1904. It was gradually eroded by the passage of the water, and in the spring of 1905 the floods of the Colorado River entering the artificial cut rapidly widened and deepened it, until the entire flow of the river, was turned west down the relatively steep slope into the Imperial Valley, and thence into what is known as the Salton Sink or Salton Sea."

Will you permit me with entire deference, to add that there was something other than criminal negligence involved in the cutting of the river bank in Mexico by C. R. Rockwood in September, 1904,

and that it was not the result of defects in the location or the construction of the original heading of the canal.

It is a matter of Government record that the California Development Company, in the spring and summer of 1904, attempted to get Congress to pass a law declaring that the waters of the Colorado were more valuable for irrigation than for navigation, and that upon the recommendation of the Reclamation Service this attempt was defeated.

It is a matter of record that the president of the California Development Company, irritated by the opposition of the Reclamation Service to the legislation sought, notified the Congressional Committee investigating the matter, that the company would make appropriation and diversion of water in Mexican territory in order that the company might acquire a water right under Mexican law, and obtain the aid and support from an alien power that it was unable to obtain from its own Government.

It is a matter of Government record that the old Imperial Canal from the old intake carried throughout the summer of 1904, and up until October 1904, when the Mexican intake was cut, more water than it had ever carried, and quite ample to supply the users in the Imperial Valley. (Vide Report of Stream Measurements for 1904, Water Supply and Irrigation, paper 13, page 27, and compare with measurements in previous years.)

The conclusion follows that it was not because of the inadequate nature of the old canal that the new one was cut.

It was cut with the idea of securing a water right under Mexican laws which the Mexican Government would protect against the hostile machinations of the Reclamation Service.

GEORGE CHAFFEY.

When the full text of the President's message came to hand, George Chaffey discovered that attached to it was a statement by E. A. Meserve, attorney for the California Development Company then controlled by the Southern Pacific, which professed to give a history of the California Development Company. This statement contained many allegations reflecting on the management during the Chaffey regime. George Chaffey thereupon forwarded to Walcott a letter drawing attention to the serious inaccuracies contained in a document given the honor of being attached to a message from the President of the United States to Congress. This stated :—

Hon. Charles D. Walcott,
Director U.S. Geological Survey,
Washington, D.C.

February, 16, 1907.

Sir :

I have at hand Senate Executive Document No. 212, 59th Congress, 2nd session, containing the President's message of January 12, 1907, *re* the Imperial Valley or Salton Sink region, and setting forth also certain correspondence, telegrams, memoranda and written contracts respecting the California Development Company, its past and present management.

At the time of the publication of the President's message, I had the honor to address to the President from Los Angeles a letter, which I presume is now on file, regarding certain matters referred to therein, and was advised in reply thereto that the information upon which the message was prepared had come through your office.

My attention is now called to a certain statement of one E. A. Meserve, attorney for the California Development Company, which is printed along with the message (see page 30 *et seq.*), the original of which I presume is among the files of your office, and which purports to give a history of the California Development Company from its inception. This statement contains many allegations reflecting upon the management of the company from 1900 to February 1902, while I was its President and General Manager, which are inaccurate in important respects.

It is true, as stated by him, that the California Development Company entered into a contract with me for the construction of a canal from the Colorado River to what we called Imperial Valley, though it is not true that this was " prior to 1900" ; nor that I was to " furnish the money" necessary to buy the lands at Hanlon's heading and build the canals in Mexico and California. Nor is it true that, instead of performing my agreement, I " built what might be called only a temporary canal, and with a heading which never was of any service" ; nor that I and my associates were taking from the company " everything that it was taking in" ; nor that we " were not expending one dollar" of our own money in developing the company's property ; nor that after we sold out the company had " but very few of the securities" ; nor that as a result of diversion of the company's funds by us the canal system constructed by my successors was not " what it ought to have been, or what it would have been if the funds and property of the company had been properly used " ; nor that the large percentage of silt in the Colorado River " demonstrated that the canal system", as planned by me, " would be a failure."

On April 3, 1900, when I entered into the contract to which Mr. Meserve has referred, the California Development Company had been in existence nearly four years. It had, besides its name and corporate existence, obligations in the shape of $1,000,000 of outstanding capital stock, and $350,000 of outstanding land scrip. It had two options upon land, as to each of which the company was in default. Finally, it had an idea, a project of large and attractive proportions, conceived, however, by others long prior to the existence of the California Development Company, a scheme for diverting the waters of the Colorado, upon which it had turned not one shovelful of dirt, and to the consummation of which it had taken not one single practical step.

It was represented to me, and indeed my contract recites, that the Development Company owned, through a subsidiary Mexican Company, 100,000 acres of land in Mexico, through which the canal must run. But for this representation (which turned out to be untrue), I should assuredly not have made the contract at all. The idea was as free to me as to any one else. I could have organized my own company for a trifling cost, much less than I was afterwards forced to pay to the State of New Jersey to save the California Development Company from dissolution at suit of its Attorney General for a tax that was in default at the very time my contract was made. Indeed I subsequently learned with considerable chagrin that my advent was an opportune and saving factor in the affairs of a company which was about to pass from existence altogether.

The obligation undertaken by me in the contract to which Mr. Meserve refers was set forth in the contract as follows :—

> " to construct such canals as are necessary for the purpose of taking water from the Colorado River at a point upon the lands owned by party of the first part (*i.e.*, the Development Company), in San Diego County (*i.e.*, Hanlon's heading, which in point of fact was not owned by the Development Company, as I afterwards discovered), and conveying the same to the point upon the international boundary line adjoining Imperial Valley, and where the Imperial Valley Company No. 1 was to take it and construct its own distributing system, said canals to have a capacity sufficient to deliver four hundred thousand acre-feet of water per annum at said last-named point."

I was further required to " construct said canals at a cost not to exceed one hundred and fifty thousand dollars" (the cost turned out to be within a few dollars of this), and to construct them at " actual cost to first party" ; and I was " not to expend more money than is necessary in such construction." The contract

contains other statements, indicating that I was to have charge of the company's finances, as well as its engineering works.

For doing all this, and making a useful and going concern out of the Development Company, my compensation was to be $60,000, payable when the company was able to pay it, and a small proportion of the stock of the company, which stock was necessarily to acquire its entire value as a result of our efforts.

In the light of this contract and all the facts of the case, I now say, in reply to the first of Mr. Meserve's allegations :

1. There was no agreement that I should furnish the money to buy Hanlon's heading, because the company represented to me in the contract (as quoted above) that they owned it.

2. There was no agreement that I should furnish the money to dig the canals, and I was led to believe that the company's land holdings would afford substantial basis for raising all needed moneys upon the company's own credit.

3. There was no agreement of any kind that I should build the distributing system in California, but, on the contrary, the contract plainly states that I was only to deliver the water at the international boundary, to be there taken up by Imperial Water Company No. 1.

4. In point of fact the misrepresentations to us as to the assets of the Development Company did compel us to raise and advance from our own pockets every dollar that we did put into the building of the canal.

5. In other words, then, while Mr. Meserve says I agreed to furnish money and didn't, the truth is, I did not agree to furnish money, and yet was compelled to do so by the gross misrepresentations of fact that were made to me regarding the company's assets.

Now, as to the statement that my canal was " what might be called only a temporary affair," and threatened to become " a complete failure." Without attempting to grasp Mr. Meserve's idea as to the kind of canals that might by him be called temporary affairs, it is enough to say (1) that it was the kind of canal and had more than the capacity called for by my contract ; (2) that it was suited and adequate to the purposes intended and sufficiently permanent in character to meet all demands upon it, if properly cared for by my successors ; (3) that it was not, or, if it was, then with proper engineering on the part of our successors it never need have become, a complete failure. Obviously I could not compel my successors to take proper care of it, nor secure it immunity from silt.

To say that the heading constructed by me was never of any service is utterly untrue. The heading was adequate so long as

properly cared for ; moreover, it is there yet (though by bad management allowed to silt), and that is more than can be said for vastly more expensive works constructed by our successors.

The other allegations to which I take chief exception are all concerned with the charge that I and my associates took from the company " everything it was taking in," leaving it without securities and consequently disabling our successors from constructing the kind of canal system that the situation required. The same suggestion appears in the President's message, and doubtless was derived from Mr. Meserve. Obviously it is a plausible justification of bad engineering and bad management by Mr. Meserve's employers, and presumably the only available pretext they have for trying to shift upon others the blame and the stigma to which they have laid themselves liable.

How does it square with the facts ?

On May 31, 1902, and shortly after we went out of the company, it issued a printed statement showing its assets and liabilities. The assets totalled $2,333,680.35. Part of this consisted of bills receivable, amounting to $525,510, and accounts receivable amounting to $235,469.34, there being lands, machinery and other good assets besides. Not only so, but the company was free from floating debt when we went out, and practically so at the time this trial-balance was taken. In addition, Mr. Meserve states that the Imperial Valley " settled very rapidly" about this time. Settlement of the Valley meant increased water sales, additional notes, mortgages, and other assets, running, I have no doubt, up to another half-million or so of securities of this class.

In truth the Development Company has at no time since we built the canal been lacking in ample resources in the form of notes and mortgages similar to those which we took (for we got no cash) prior to selling our interests in the Development Company. It is not true that the securities we took (and we took them all in fair and lawful manner, with the consent of all persons interested, and the transactions were afterwards ratified by the stockholders of the Development Company in annual meeting) crippled or embarrassed the company in any way, or left it incapable of conducting its engineering affairs upon sound engineering lines.

Mr. Meserve says that the company now " has assets amply sufficient to meet and pay all debts" for closing the break in the river, although Mr. Doran, in his letter, estimates those debts already at about $1,800,000. If its assets are ample now, much more were they sufficient at a time when it owed not one dollar of this present indebtedness to the Southern Pacific Company.

I am aware that the statements of the Development Company's attorney, to which I have taken exception, are merely preliminary, and by way of justification of the action of Mr. Rockwood in cutting the disastrous Mexican intake in 1904, and his "criminal negligence" in leaving it unprotected by a bulkhead or heading of any kind. I believe I have shown that his effort to shift the odium which history must attach to that unfortunate blunder fails of support in the contract, acts, and transactions upon which he seeks to rest it. Not only so, but the fallaciousness of his position is even more readily demonstrated by the official water measurements upon the Imperial Canal throughout the season of 1904, when Mr. Meserve would have it understood that the original canal had become inadequate, and that the people were threatened with a water famine. Those measurements demonstrate that an ample supply of water was running in that canal at all times throughout the season of 1904, up to the day the Mexican intake was made. They furnish point to the charge that that cut was made pursuant to a plan to acquire a water right under the laws of Mexico, and pursuant to a declaration of Mr. Heber before a Committee of the House of Representatives that the company would seek a Mexican water right if Congress refused them certain protective legislation that they asked. To this matter I have heretofore referred in my letter to the President, already on file, and am informed that members of the House Committee, to whom Mr. Heber's statement was made, have confirmed the accuracy of my allegation in this respect.

As for the suit against me to which Mr. Meserve also refers, I do not care to say anything at present, further than that charges of one kind and another are made therein, but have not as yet been proven. I shall ask the privilege of filing in your office a copy of the answer thereto, which my attorneys are preparing, and perhaps some further documents calculated to throw light upon the spirit and purpose with which the suit in question was conceived and has been used.*

GEORGE CHAFFEY.

* In 1906, four years after George Chaffey had severed all connection with the California Development Company, the Southern Pacific, which then dominated the management of the C.D. Co., made an effort to wrest full control from the shareholders. It caused a "blanket" suit to be filed against George Chaffey, A. M. Chaffey, and nine others, including all who had been prominent in the management of the California Development Company before the Southern Pacific regime.

The suit, which grew out of complications resulting from the Southern Pacific's decision to advance funds to close the Rockwood Cut in circumstances already narrated, alleged fraud and mismanagement in the conduct of the company's affairs, and sought to recover securities alleged to have been improperly acquired.

A sworn answer specifically denying each and every allegation was duly filed by the Chaffeys, and as to them the suit was dismissed.

Roosevelt called for a report from Walcott on George Chaffey's letter. The Reclamation Chief, on January 28, wrote the President the statement which follows :—

The President, The White House.

Sir :

Referring to letter of January 15, from Mr. Geo. Chaffey, commenting on your message to Congress of January 12, I desire to say that the explanations given by Mr. Chaffey are not, in my opinion, wholly ingenuous, and do not weaken the statements made in your message. It is not necessary to go into all of the details, but I will merely comment upon a few, as indicative of the weight to be placed upon others.

Paragraph four, on page three of his letter, states that obstacles well-nigh insurmountable were interposed by officials of the Government, namely, in the soil report of the Department of Agriculture on the Imperial Valley as " absolutely unfit for agriculture." The soil report by the Department of Agriculture, on the contrary, pointed out the fact that, while there was a large area of good land, there were also areas so impregnated with alkali that it would be unwise for men to plant orchards, for the probability was that in a few years, when the trees reached maturity, they would die from the excess of salt. The conclusion of the soil report (Field Operations of the Bureau of Soils, 1903, page 34), is as follows :—

> " The soil is wonderfully fertile, and irrigated with the sediment-laden water of the Colorado must remain so. The ultimate total reclamation and profitable cultivation of the desert will surely take place. The greatest question at present is one of expediency, namely, How can the reclamation take place and yet protect the present owners from loss ? It is believed this can best be done by cultivating at present only the lands that will produce profitable yields of crops now being grown, and by leaving the badly alkaline lands to be reclaimed when a new system of agriculture has raised the price of land to a point where it will justify the expenditure, and when the need for reclamation has been recognized by everyone interested in the country, so as to secure a complete co-operation of all concerned."

All the reports of the Department of Agriculture on this point are moderate in tone and were highly advantageous to the settlers in guiding them in making selection of lands.

Another glaring misstatement made on the bottom of page five is to the effect that Heading No. 3* of the California Development Company was made solely for the purpose of acquiring a water right

* The Rockwood Cut.

in Mexico. This is hardly consistent with the fact that there already existed Heading No. 2 on Mexican soil, but so far north that it was difficult, if not impossible, to secure an adequate supply of water through this heading to the canal below.

The whole letter is one of such apparent misstatement of known conditions that it seems unwise to go into an elaborate argument on the point.

The nature of the transactions in which Mr. Chaffey and others were involved when controlling the company will probably be developed in suits which have been brought by the present officers of the California Development Company (*i.e.*, the Southern Pacific Railroad) against the old officers for misappropriation of funds. It is stated that already a considerable amount of securities have been returned by some of these officials in fear of criminal action, and that other sums will probably be obtained as the result of civil action, as stated in the letter of W. J. Doran, Treasurer, on page sixteen of the printed copy of your message of January 12, 1907.

Mr. Chaffey states on page two of his letter, that all the money obtained from settlers during the period of his management of the California Development Company was used in permanent development; and furthermore, that much more than twice the money so received was used and expended.

In this connection I refer to the memorandum of Mr. Edwin A. Meserve, attorney for the California Development Company, printed with your message, where on page thirty-two he states that Mr. Chaffey built what might be called only a temporary canal, with a heading which was never of any service, and so handled the securities of the company that, in December, 1901, the stockholders found that he and his associates were taking from the company everything that it was taking in, and that they were not expending one dollar of their own money in developing the company's property. He states further, that the California Development Company now has an action pending against Chaffey and his associates to recover something over $900,000 in money, mortgages, notes and bonds.

In a statement published by Mr. A. H. Heber, who was president of the company until the management was turned over to the Southern Pacific Company, after giving in detail the status of the company as turned over by Mr. Chaffey, he says that when Mr. Chaffey turned over the management of the corporation he and his associates :—

> " retired with a handsome profit, requiring the disposition of all of the bonds at a ridiculously low price, and a large portion of the cream of the notes and mortgages owned by the company, in

order to make settlements and keep the company out of the expensive and long litigation which was threatened, in the event of which it would naturally have driven people out of the Valley and ruined them."—(Page 16 of a printed address to the settlers of the Imperial Valley, issued by Mr. Heber, January 25, 1904.)

The statements in your message concerning the financial administration of the California Development Company are thoroughly conservative. The fragments of the inside history which have come to the knowledge of the Government, indicate that the officers of the company, from its very inception, have treated its resources purely for their personal gain and without due regard to the permanent future development of the Valley.

It is probable that if the suits now pending against its former officers should come to trial, many things now merely hinted at in the data available to the Government, would show acts on their part of the most reprehensible character. There can be no question that the enterprise has been grossly mismanaged in both its engineering and financial features. However, the matter is one of no direct interest to the Government, and must be settled by those whose rights and investments are concerned.

CHAS. D. WALCOTT, Director.

George Chaffey's reply, which closed and crowned the controversy, inflicted stinging and richly-deserved chastisement on Walcott for his dishonest controversial methods. His conduct in repeating to the President scandalous *ex parte* charges in an attempt to bolster up the false statements he had caused Roosevelt to embody in a message to Congress, deserved the severest censure. It is remarkable that an official of such status should have permitted himself, and been permitted, to prefix charges of the utmost gravity with phrases like: "It is stated," in addressing the President of the United States.

"Upon returning to this city I find your letter to the President, of January 28, by way of reply to statements contained in my letter to the President of January 15," George Chaffey wrote, addressing Walcott:—

"Heretofore and under date of February 16, 1907, I make reply to some of the most conspicuous of the inaccuracies embodied in the memoranda filed by E. A. Meserve, prepared 'largely from memory,' not accurate 'as to dates nor as to measurements,' but, as he says, 'accurate as a matter of general history.' It is a matter of regret to me that I had not at that

time received your communication or been apprised of its contents.

"You seek to impeach the credibility of my letter of January 15, by characterizing two of my allegations as 'glaring misstatements.' To these, in their order, I beg now to call your further attention.

"With reference to the soil reports of the Department of Agriculture, you quote from the soil report of 1903 at some length, and you say that all the soil reports were 'moderate in tone, and were highly advantageous to the settlers in guiding them in making selection of lands.' Your error, however, consists in overlooking the soil report dated January 10, 1902, and to which I had particular reference, the substance and conclusions of which were known prior to that date, and were at that time given wide and destructive publicity. I could scarcely have referred or intended to refer to a report published about two years after I had ceased to have anything to do with the enterprise. And you will, I am sure, appreciate the fact that we, who were struggling for success in 1901 and 1902, would at that time find little consolation in the revised and qualified reports for the year 1903, which were later to appear, and which, I am willing to concede for the purpose of this discussion, may have been, when published, all that you claim for them, viz., 'moderate in tone and highly advantageous to the settlers in guiding them in making selection of lands.'

"But even if it could be shown that the Federal reports were at no time utterly condemnatory of the enterprise, it is abundantly true that they were so taken by the press and by the public, and that they were most calamitous and blighting in their effects upon the enterprise.

"Hence, I say now, with what emphasis is at my command, that it is impossible for any one, having due regard to the facts of the case, to impair the substantial accuracy of the points which I sought to make in writing to the President, viz. :—

1. That the extraordinary and most discouraging financial difficulties of the whole undertaking were those interposed by the department of the Federal Government ;

2. That it is consequently particularly trying to us, who did the best we could in the face of obstacles officially interposed, now to be criticized officially because we did not do better.

"Your second specification of my inaccuracy challenges my statement that the Mexican intake of the California Development Company was for the purpose of acquiring a Mexican water right, and you say 'this is hardly consistent with the fact that there already existed heading No. 2 on Mexican soil, but so far north that it was difficult, if not impossible, to secure an adequate supply of water through this heading to the canal below.'

"Further reflection may convince you that the absence of any 'inconsistency' appears upon the very face of your statement. How could the California Development Company acquire a satisfactory Mexican water right through heading No. 2, if, as you say, it was difficult, if not impossible, to get water through it?'

"The substance of my statement was: (1) that there was plenty of water passing through the old canal all through the summer of 1904 (and I cite official measurements in its support), and (2) that the intake from which all the trouble has resulted was cut for the purpose of acquiring a Mexican water right. It is no reply to say that the company made two cuts instead of one, as alleged by me, when you yourself say they found they could not get the water through the first. . . . .

"The remainder of your letter is devoted to a repetition of various libellous statements which have been made to you *ex parte*, and as to none of which was any opportunity for explanation or denial accorded me. Some of them you draw from Mr. Meserve's memorandum, and these have already been considered in my letter of February 16.

"You draw from the letter of W. J. Doran and from undisclosed sources certain defamatory and scandalous matter relative to a suit that has been filed, as follows: 'It is stated that already a considerable amount of securities have been returned by some of those officials in fear of criminal action, and that other sums will probably be obtained as the result of civil action.'

"You repeat to the President of the United States a libellous piece of scandal, which you yourself do not claim to have investigated or to find proven, but merely something that 'is stated.' Do you not know that the large stockholders of many

a corporation in financial straits, whose stock is non-assessable, have frequently in the past deemed it to their interest to place portions of their stock or other holdings in the corporate treasury for the purpose of assisting it, and without suit, civil or criminal, or threat thereof, or any necessity for any such form of intimidation? Do you not know that one year ago, under date of February 24, 1906, this same W. J. Doran, after obtaining the contribution of stock and securities from the leading stockholders, to which he and you now refer, addressed to the stockholders generally a letter (a copy of which I attach hereto for comparison with his letter of December 26, 1906), stating that this contribution had been made and asking that they follow the example set and make similar donations to help the company? A little inquiry upon your part might have freed this transaction from its sinister aspects, and might, indeed, have led you to a correct understanding of the very motives with which the suit in question was framed and has been used.

"Your allegation that 'it is probable' when the suit comes to trial it will show acts of the 'most reprehensible character,' is obviously but a repetition of something somebody has said about something that has not yet happened, and in the nature of things cannot be anything else than gratuitously libellous.

"To all the charges, accusations, and insinuations, from first to last, so far as affecting myself and immediate associates, I enter an unqualified denial.

"I appreciate, however, the propriety of your concluding statement, that the matter of the relations of myself and the company is 'one of no direct interest to the Government.' In this, unquestionably, you are correct. The Government is not concerned. Its administrative officers are under no duty to investigate. The truth or falsity of the charges and statements made is of no moment to it. I discovered this while in Washington, and at your office, prepared to show that the situation had been misrepresented and injustice done, as it usually is when any one is judged without a hearing.

"I shall not, therefore, prolong this communication upon any theory that there is either jurisdiction or inclination in the Geological Survey Bureau to investigate the truth or falsity of any of the matters to which reference has been had.

"The only point I desire to make is this : If there is neither jurisdiction nor desire to investigate charges made ; if there is to be no formal inquiry, no hearing, no attempt at verification or opportunity for explanation, then clearly it is unfair that charges should be accepted as true, and improper that they should be disseminated as such or repeated in hearsay form, upon the faith and with the prestige naturally attaching to the letters and publications of a department of the United States Government.

"You procure defamatory statements and cause them to be made the basis of paragraphs in a message of the President published throughout the length and breadth of the land, though unfamiliar with the subject-matter concerned, and express with some violence the opinion that the statements are true. You then proceed to repeat to the President, with an introductory, 'it is stated,' or 'it is probable,' matters which seem to indicate your conception of a Government bureau as a sort of clearing-house for scandal. And, finally, you excuse your entire want of effort to verify the truth or fairness of defamatory statements, made *ex parte*, or to ascertain the motives and position of those who made them, or to hear the statements and explanations upon the other side, with the observation that 'the matter is one in which the Government has no direct interest.'

"If I may be pardoned for saying so, it does not appear that your course in this matter does credit to your fairness as an individual, your dignity as a Government official, or your discrimination and capacity for accuracy in investigation as a man of science."

CHAPTER XXV

CALUMNY SILENCED

IN the summer of 1905 George Chaffey, accompanied by S. P. Jewett, a railroad engineer, paid a vacation visit to the Owens River Valley, two hundred miles from Los Angeles, and largely as a result of representations made by his old friend L. M. Holt, became interested in the prospects of hydro-electric power development there. He filed on the water of a number of streams originating in the High Sierras with the three-fold intention of using the water for the irrigation of desert lands in the Valley, generating hydro-electric power, and building an electric railroad to connect the Valley with Los Angeles. This project involved him in a conflict with the city of Los Angeles, which precipitated nearly twenty years of litigation.

About the same time the city had secretly determined to acquire large holdings in the Owens Valley, with the object of securing sufficient water to justify the building of an aqueduct to carry irrigating and domestic water to Los Angeles and its environs. The clash of interests between the Sierra Securities Company, which George Chaffey organized to carry out his project, and the city soon became acute.

Part of the area concerned had long been a National Forest Reserve. The city induced Gifford Pinchot, at this time the national forestry chief, to extend the reserve to embrace land which had always been absolutely devoid of timber. It then used its influence at Washington to circumvent George Chaffey's efforts to obtain the necessary permits for the projected works. He had founded the town of Manzanar, a subdivision of one of the old Owens Valley ranches, which had acquired a large water right through an appropriation of one of the earliest settlers. The city was able to embarrass and harass the settlement at every turn. Eventually it bought out the Chaffey interests, and the settlers, thus releasing the water right for its own use.

In endeavoring to maintain his rights, George Chaffey brought departmental processes at Washington against the city, which, defending these, made serious charges against Chaffey's integrity and ability, and quoted the Mildura Royal Commission's Report as evidence of bad faith and incapacity in Australia. In addition, Imperial Valley litigation, arising out of circumstances already narrated, was referred to. These charges caused George Chaffey to appeal to Australia, with results which showed that the Mildura Royal Commission of 1896 was already completely discredited. Leading Australian public men from Alfred Deakin, now Prime Minister of Australia, downward, united in testifying in the greatness of the Chaffey achievements in Australia.

The argument submitted to the Secretary of the Interior on behalf of the city of Los Angeles, stated, *inter alia* :—

" In the present case we believe the Secretary, in finally determining the questions here involved, should inquire, not only as to the financial ability of the applicant to carry out his declared intentions, but also into any facts disclosed by public records which would tend to show the character and standing of the applicant.

" In this connection, and as supporting our contention that Chaffey has not, by reason of his numerous applications, covering an area of some sixty or seventy miles, displayed that good faith which it is incumbent upon all applicants to establish, we desire to call attention to the official report of the Mildura Royal Commission, 1896, presented to the Parliament of Australia, wherein the failure of Mr. Chaffey and his brother with regard to certain colonization schemes in Australia is fully set forth, the causes of such failure being therein stated to be, *inter alia*, ' the non-fulfilment of the obligations undertaken in the agreement, whereby the reasonable expectations of settlers in Mildura have been disappointed, and the hopeless financial management of the company.'

" This report . . . . contains much information of a character to condemn the promoters of the Mildura colonization scheme. . . . "

George Chaffey's masterly reply stated :—

" For the greater part of the past twenty-five years, I have been engaged upon projects in California and Australia for bringing water by piping, pumping and canals to lands otherwise barren and unproductive. Given the requisite conditions of soil or climate and the requisite possibility of water conservation or diversion, these enterprises are feasible enough in many arid

regions, and of great public benefit. As said by the *New York Times*, editorially, at the time of the announcement of the Imperial project, 'they do more for the progress of civilization than all the banking deals that can be evolved in the board rooms of the Napoleons of finance. They not only make blades of grass grow where none grew before, but they make homes for the homeless and add something tangible to the national wealth. This is better territorial expansion than can be effected by colonization or conquest.'

"Yet the promoters of such undertakings rarely reap a financial reward in proportion to their contribution to the country's wealth and the country's advancement. The reason is that they merely create agricultural opportunity, and their reward requires that such opportunity be availed of by others, the extent to which this is done depending upon conditions and contingencies beyond their control. The conferring of public benefits, it seems, is not as satisfactory a road to personal profit as the acquisition of control over some public utility or necessity, and the levying of tribute which the public has no choice but to pay.

"To American eyes the controlling causes of failure were obvious enough, and a commission of inquiry would have been a superfluous luxury. The English way, however, at such a time, is a Royal Commission, and the Mildura Commission of 1896 was created, made its investigation, and filed its report.

"An inquiry of that sort gave the disgruntled and the malicious their opportunity for complaint and abuse. Engineer after engineer, called to testify, gave it as his opinion that the pumping system which I installed for pumping the water from the Murray River to the different canal levels was worthless, ascribed failure to that cause, and recommended the installation of a different system. The Royal Commission found that—'Mr. George Chaffey stands alone in his statement that the machinery is of the best and most effective kind for the work required at Mildura.'

"It found a non-fulfilment of the obligations of the agreement entered into by us with the Province of Victoria, though overlooking railroad and other obligations undertaken by the Victorian Government and unfulfilled that of themselves would have sufficed to cause failure. And in the paragraph of the

Commission's findings that is quoted in the Los Angeles brief, they criticized the financial management of the company as 'hopeless.' A little fuller excerpt from the report of the Commission, and one including three or four lines immediately preceding the part quoted, would have included the statement that 'Mr. J. F. Levien took his place on the directorate, becoming chairman of the board, and managing the financial business of the company.' And a quotation from a subsequent page would have disclosed a finding by the Commission that the 'financial management of Chaffey Brothers Limited was from the first wholly in the hands of Mr. Levien.' In other words, this criticism of the company's financial management was directed against my associate, Mr. Levien, rather than myself.

"I do not cite this to shift responsibility to Mr. Levien, who died last year. His financial management of the company, through the most trying years in the history of Australia, has met with high praise from more competent judges than the members of the Victorian Commission. I refer to it merely for the purpose of showing that the author of the city's argument has engaged in a deliberate attempt to mislead the department into the belief that this criticism was directed against me. The particular indictment of myself was on account of the pumping system, which I had installed according to my own plans and from my own designs. The whole report, the testimony, and the scope of the inquiry reflected and were coloured by the unusual conditions prevailing at that time. Financial depression was so great and so widespread that public sentiment was not normal, and on every hand men were being subjected to hysterical or unwarranted criticism. The ten years that have elapsed since the publication of the report of the Mildura Royal Commission have removed any necessity for impeachment of it, for argument against its findings, for criticism of the engineers who were then condemned, or for explanations that could not outweigh, in the unfamiliar mind, the findings of a Royal Commission, and would convince only those having a better knowledge of irrigation problems than had its members.

"Since the report was published, Australia has had its share of seasons with abundant rainfall and financial prosperity. Economic conditions have returned to normal. Australian horticulturists have learned the art of fruit raising and the

proper methods of irrigation. Mildura has taken high rank as a fruit-growing centre, and fulfilled all reasonable expectations entertained at the time that it was founded. The settlement has become a model for other similar undertakings, and kind words for its founders are not wanting.

"Within the last ten years, also, the pumping machinery and the pumping system recommended by the several engineers who testified before the Royal Commission, have been installed at great expense, have been given a fair trial, and have been found ill-adapted to the purpose. The old machinery, the old pumps, and the old system, which they condemned, have been restored and are now being successfully used.

"In the Mildura *Cultivator* for March 9, 1907, which has only just come to hand, is an article entitled 'Ten Years After,' from which the following quotation regarding pumping machinery is pertinent:

"The original boilers and engine installed by Chaffey Brothers Limited are still there, and though the boilers must have nearly reached the limit of the term at which they could continue to carry steam at high pressure, they are still over their work. In fact, steam is taken from them to supplement that supplied to the Otis pumping engine, which is fed from the internally fired boiler installed here ten years ago. I recollect that as editor of the *Cultivator* at that time, I ventured to criticize the recommendations and designs of Mr. J. T. Noble Anderson, at whose instance the boiler and the Otis plant were procured, in rather disparaging terms. I had not a very high opinion of that cocksure but calamitous young man's ability to teach George Chaffey how to raise water for irrigation, and from what I know now my admiration has not yet been excited, so far as his work in Mildura is concerned. The boiler was unsuitable to local conditions," etc., etc.

In consequence of charges against him arising out of the Owens River Valley litigation, George Chaffey appealed to Australia to vindicate him in the eyes of the American people. He first had resource to the Prime Minister, Alfred Deakin, who, as we have seen, knew more about the Chaffeys and their work in Australia than any other of his countrymen. Deakin, moreover, was an eminent public man of spotless honor, a knight *sans peur et sans reproche*. On receiving George Chaffey's communication he at once wrote to Stuart

Murray, the Chief Engineer for Water Supply of Victoria, asking for the latest information about Mildura. The historic letter which follows resulted.

"Commonwealth of Australia.
Prime Minister,
Melbourne, October 2, 1907.

My Dear Mr. Chaffey,

I am still as interested in the development of irrigation in Australia as I was when Minister of Water Supply in Victoria. So far as circumstances permit, I still endeavor to keep in touch with its developments in this State and elsewhere. Although a great deal has been done in this direction since my letter to you of June 30, 1898, *Mildura still remains the best object lesson we have received in irrigation for intense culture. That single enterprise has done more to elucidate the problems that surround the great question of the settlement of our interior, where water is available, than anything that has been done since. The State of Victoria has never lost anything by you or your enterprise. On the contrary, we have gained much by the daring work which you inaugurated on the Murray, and of which I am still convinced you would have made a great success if you had been permitted to carry out your plans without the senseless internecine strife which compelled you to cease your control.*

Mildura to-day has upwards of 4000 *people irrigating more than* 11,000 *acres; the revenue they pay to the local Water Trust for this year being estimated at* £19,000. *This result has been achieved in the face of the most untoward circumstances, and after a prolonged delay which might have been avoided had you been properly supported at the outset. I can repeat once more my former assurance that "no one has been able to establish against you anything reflecting in any way upon your bona fides or integrity, or your straightforwardness."*

Your courage, ability, resource, and energy merited very different treatment than that which you received from the short-sighted people who proved to be their own worst enemies when they assailed you or continue to assail you without just cause.

Yours very truly,
Alfred Deakin.

Mr. Theodore Fink, prominent for nearly half a century as one of Victoria's most prominent and public-spirited citizens, wrote to George Chaffey in the following terms at this period.*

"I am glad to hear from you, and that you are getting on well, but am not surprised, seeing the controversy that was raging about Mildura when you left Australia, that your opponents may be using some of the one-sided statements made to your professional detriment before you left Victoria about the Mildura Irrigation scheme.

"At that time the Irrigation Colony suffered from two unfortunate influences—the great Australian bank crisis, which submerged most of our financial institutions, the general paralysis of credit bringing your company to the ground, and the political questions raised by the settlers.

"With regard to the report of the Commission, time has hopelessly falsified the whole of that report, notwithstanding that it states that you stood alone among engineers in defending the pump system installed at Mildura. Neither in the original work nor in any extension of it since your departure has it been ever suggested that this system be varied.

"As far as the financial management of the company is concerned, everybody here knows, including my clients, the liquidators of the company, that you had nothing to do with that—that you were simply at work at Mildura on the irrigation and development side of the concern, and that the finance was done both in Melbourne and London.

"It is very amusing at this distance of time to read the report of the Commission. The part you quote about the reasonable expectation of settlers in Mildura being disappointed, refers to a minority of agitators who stated that, because the Indenture of Concession from the Government to you provided that a water right should run with the land as a perpetual easement, this meant that water should be supplied free or in perpetuity from the Murray for the purchase price of the land. I am sure you would not find one settler of Mildura who would not ridicule such a suggestion to-day. So far as the account stands as between Mildura and the State of Victoria, a thriving settlement has been added to our State, and the object lesson, apart from the material addition, is very great.

"Since your departure Mildura has been made the terminus of a railway through the Mallee, which does not look as if the settlement was a failure.

"It has a population of four thousand. Land that was worth nothing, now contains one of the most thriving settlements south of the line, where the conditions of country life equal and probably

* The letter is dated June 10, 1907.

surpass the average conditions of rural life elsewhere in the State. The Mildura Irrigation Trust is now working smoothly and successfully; co-operative and modern methods of marketing produce are in full operation, and if the Railway Department were run in the interests of producers, or even went so far in that direction as to charge rates in any degree resembling the big through rates which obtained in the United States, the population would be speedily doubled. In July 1898 I wrote a letter to your brother, in which I referred to the loss Victoria has suffered by your departure. I have not in any way changed my opinion. I am sorry that the Hon. Alfred Deakin, Prime Minister of the Commonwealth, is not in Victoria to-day. He is on his road home from the Premiers' Conference. He was instrumental in inaugurating our Irrigation Policy and in granting the Mildura Concession. I have reason to know that the views I have expressed about you are similar to his own, and I have no doubt that if he were called upon he would write even a stronger letter."

Walter Madden, a member of the 1884 Royal Commission on Irrigation and Water Supply, of which Deakin was President, wrote to George Chaffey in 1907 as follows :—

" Upon hearing that you were leaving Victoria for America, I, as Parliamentary representative of the Wimmera district (in which your great Australian Irrigation Colony is situated), wrote to you expressing my deep regret that the Colony was losing your valuable services, and hoping that your exceptional talents would, in the larger American sphere, obtain the reward they deserved.

" A series of bad seasons, combined with a breach of faith on the part of the Government of the day in withholding the long promised railroad, had for the moment made Mildura apparently a financial failure, but that which some of us thought at the time, namely, that the failure was only an apparent failure, has turned out to be the true position, for since then the settlement has steadily progressed, until this year the value of the output will, I understand, reach the handsome total of £220,000—the excellence of your engineering works and the making of the railroad by the Government two or three years ago being important factors in this most favorable result.

" I have been pained, however, to learn that since you have been in America some of the opponents of certain engineering projects of yours have attempted to make out that you left Victoria under compulsion, and that your departure was more or less for the Colony's good. Nothing could be farther from the truth—That for the reasons beyond your control, Mildura was for the moment apparently a failure, and that you had lost money, were admitted

facts at the time, but the statements that there was any stain upon your personal honor or on your engineering capacity, are gross and wicked libels.

" Your brother, Mr. W. B. Chaffey, who decided to remain at Mildura, is still one of the most respected residents in the settlement, where he has held, by election, the highest offices, and I feel certain that if you should return to Mildura to-morrow you would, as one of the originators of the settlement, receive a hearty welcome from the residents. Had there been anything against your personal honor this would hardly be so."

William Culross, an Adelaide attorney, who acted for the Renmark Irrigation Trust and for the South Australian Government in connection with the settlement of affairs in that State following on the liquidation of Chaffey Brothers Limited, paid George Chaffey this high tribute :—

" As you may be aware, I have had close association with many settlers in the Mildura Settlement, and with the financial people connected with both settlements, and consequently consider I speak with considerable knowledge of the subject. It affords me very great pleasure to bear testimony not only to the great success which has attended your Renmark and Mildura schemes, but to your personal worth and high and scrupulous sense of honor, and in both respects I know I am supported by all the prominent business men (both commercial and banking) here and in Melbourne, who came in contact with you as well as by members of the Government.

" Anyone who knows anything at all of the history of the Chaffey Company is aware that the financial management of the business was not in your hands at all, and that if there were any shortcomings in such management it could not be attributed to you. I greatly regret to hear that such unfair use is being made of the Mildura Royal Commission Report of 1896, and I may say the feeling in Australia is very general that if such report had to be made to-day its tone would be vastly different, and highly in favor of your great work in Australia, by which you redeemed and reclaimed and put to profitable use large areas of what was previously regarded as practically useless and worthless country.

" I am very glad indeed, and so are all your many friends here, to know of the success which has attended you in your new departure, and we all heartily wish you a continuance of it, and my only regret is that Australia was not a little more patient with you, for I am sure every true Australian wishes that you could have been here to reap the reward and witness the success of your pioneering work. It is some satisfaction that we still have your brother with us,

and that he enjoys the high respect and esteem of all who know him. I am sorry that he does not see his way to accede to the wishes of his many friends that he should become the representative of the Mildura District in Parliament. The success which your son Ben has attained to is very gratifying, and I can assure you he is much respected for his sterling qualities.

W. F. Salmon, then still a representative of the debenture holders, wrote under date May 27, 1907 :—

"A few agitators at Mildura aggravated the position. The then Victorian Government, amid the then general financial crash, proved most willing to pander to the outcry. Much of the evidence given before the Royal Commission has since proved to have been largely incorrect and misleading. Many of the witnesses (consciously or unconsciously) allowed their evidence to be biassed by their desires, which were then well expressed to me more than once (and to others) — 'To get the Chaffeys and the Chaffey Company out, and to get the Government in.' That was their aim ! You were the victim of a popular and semi-political outcry, which was successful because of the general financial crash during which you and your colleagues used every possible effort to stem the disaster that eventually overwhelmed you.

" I write this now because I hear that these Australian troubles have been brought forward in America to your prejudice. If these be correct, such tactics are, I consider, most unworthy. Reasonable enquiries, if now made in Victoria, would prove beyond a shadow of a doubt that, although you left Australia a ruined man, you left behind you an honorable record. Also, the present position of affairs at Mildura and Renmark proves beyond doubt that the scheme or plans of both settlements as initiated and partly completed by you were singularly correct both in regard to the engineering works and system, and of the scheme of the settlements generally. Many critics of your engineering and irrigation arrangements prophesied dire results unless the whole thing was radically altered at an estimated cost of many thousands of pounds. These arguments were part of the cry against you. Now, about fifteen years afterwards, what is the position ?

" The pumping machinery arrangements remain practically as you designed and left them.

" The general scheme of the settlement remains as you laid it out.

" The cementing of some water channels, some minor erections, alterations, and the usual repairs of the pumping machinery are practically the only alterations of any magnitude that have taken place in the Mildura scheme since the financial crash—the cementing

work your company already commenced with at Mildura and Renmark—so that the Government has only combined that work, towards which (and some minor erections) they have during some ten years advanced on loan some £48,000 (to the now Mildura Irrigation Trust). I need hardly tell you that up to date practically no interest has been paid on this advance.

" These are very common results in Australia with respect to advances made by our Governments on loan to Irrigation Trusts—In fact, to pay either principal or interest is the rare exception. This fact explains much of the success of the agitation that helped so materially your financial ruin in Australia. Private enterprise has no fair chance in Australia when pitted against ' Getting the Government.'

" When you were in Australia I always knew you to be honorable, loyal to your friends, and charitable to your opponents. I gladly, therefore, send you this support in the conflict in which you are engaged. It can be supplemented twenty-fold if required.

" If all initiators of great enterprises were condemned because of partial errors, temporary disaster or some increased cost over original estimates, then I am sure most of our eminent engineers, inventors and others would be recorded as frauds instead of benefactors to their fellows."

Thus on the testimony of eminent Australians from the Prime Minister downwards, the report of the Mildura Royal Commission had, within little more than a decade, been completely discredited. With the years that have since passed has come increased recognition of the greatness of George Chaffey's achievements and of the grave injustice done him by the Commission. " And so the whirligig of time brings in its revenges."

CHAPYER XXVI

DREAMS THAT CAME TRUE

AND now we come to the closing stages of the career of a man whose creative genius caused so many deserts to flower, whose foresight, strength and skill enriched so many communities.

The close of the Imperial Valley period of his work found George Chaffey in his fifty-fifth year, with one more great irrigation conception still to blossom in his fertile brain, with an active banking career before him, and with the long-delayed golden reward for a quarter century of pioneering irrigation work about to shower on him. During the next fifteen years he was to be immersed in business arising out of the marvellous expansion of Los Angeles –with substantial advantage to himself and with still greater advantage to the community.

In 1902, George Chaffey began the last, but not the least notable, of his irrigation projects. This was the development of the beautiful East Whittier-La Habra Valley, about twenty miles from Los Angeles.

Lying almost dormant before he brought the water there, this region now contains some of the highest priced cultivated land in America. About 12,000 acres, worth from $30 to $60 an acre when regarded merely as barley land, have been transformed into citrus groves of almost fabulous value. The highest price paid for land in this district is $9000 dollars an acre. Sales at $3000 an acre are quite common.

To-day East Whittier and La Habra are famed for producing citrus fruits of the highest class. They are twin districts filled with beautiful homes, set amid orange and lemon groves, palms and flowers, and, largely owing their present-day prosperity to George Chaffey's enterprise and foresight, rank among the most progressive citrus regions of California. The combined annual production is in the vicinity of $30,000,000.

In 1902 George Chaffey purchased an interest in the East Whittier Land and Water Company, with the object of irrigating the frost-free lands of East Whittier and La Habra. He transformed the old company into the Whittier Water Company, of which he became president. The water was brought from wells drilled in the normally dry bed of the San Gabriel River, at a point seven miles north of Whittier, and fourteen miles from La Habra. Through these wells the mountain water, which had percolated down into the strata below the river bed, came to the surface, raised during those months when the demand for water was greatest by an air lift system driven by an engine designed by George Chaffey.

The wells were drained into a covered cement conduit with a capacity of 1500 inches, which ran through the city of Whittier to the fruit and vegetable ranches of East Whittier and La Habra. At the Leffingwell ranch, near Whittier, a pumping station was installed to supply the ranches on the south side of the hills. Two mutual water companies were organized to distribute the water. The California Domestic Water Company supplied the lands over which the water would flow by gravity from the main conduit, and the La Habra Water Company pumped the water to the higher levels into pipe lines. From the Leffingwell ranch, steel and cement pipes radiated, serving East Whittier, La Habra and the La Mirada ranch.

The East Whittier-La Habra project, though overshadowed by the greatness of the Imperial Valley scheme, and without the spectacular elements which surrounded the other Chaffey undertakings, ranks as one of the most noteworthy achievements in George Chaffey's career. It has converted a large area once thought only good enough for barley crops into magnificent citrus country, and has done much to make the pleasant city of Whittier the prosperous community centre that it is to-day. It effectively rounded off the engineering career of the Dreamer and Builder who had come from Canada to the Southland nearly a quarter of a century before, inspired by dreams destined to become realities.

Soon after his retirement from the California Development Company, George Chaffey, foreseeing the marvellous business expansion in Southern California which has since come to pass,

turned his attention to banking. His success in this sphere was due mainly to the financial gifts of his eldest son, A. M. Chaffey, who introduced the Australian branch banking system into California. The result of the Chaffeys' banking activities is the California Bank of to-day which, with fifty branches and resources exceeding 120,000,000 dollars, is one of the leading financial institutions of Western America.

George Chaffey's eldest son had from early youth disclosed marked financial ability. His success in the American banking world has been steady though rapid. To-day he is one of California's outstanding business men, a notable figure in the great financial centre of Los Angeles.*

A. M. CHAFFEY
President of California Bank,
Los Angeles.

A. M. Chaffey had gained his first banking experience with the Union Bank of Australia, a powerful British institution with head office in London and branches throughout Australia and New Zealand. As agent of the Union Bank at Mildura during the great depression of the nineties, he had such opportunities to observe the advantages of branch banking that he became convinced the system could be applied with advantage to America. The career of the California Bank and of those that have followed its lead has proved the Australian system to be admirably suited to American conditions.

* A. M. Chaffey in 1928 is President of the California Bank, and the National City Bank of Los Angeles; President of the Community Development Association; Treasurer of the University of Southern California; Trustee of the Harvard School of Los Angeles, and of the Chaffey College Trust; Trustee and Treasurer of the Pacific Palisades Association; Director of the Mortgage Guarantee Company, Pacific Mortgages Guarantee Company, California Trust Company and California Securities Company.

In 1901, the Chaffeys had organized the first National Bank of Imperial, of which George Chaffey became president. When he retired from the California Development Company, George Chaffey sold his interest in this bank and, in the same year, with A. M. Chaffey, organized the First National Bank of Ontario, of which he became first president. This bank, established by the elder of the two brothers, who founded the colony, was an instant success, and encouraged the Chaffeys to enter the wider field of Los Angeles city banking.*

A. M. Chaffey has been president of the California Bank since its establishment. George Chaffey is still a director, though he has long ceased to take any active interest in business.

The Whittier-La Habra scheme and his large banking interests occupied George Chaffey's attention from the early years of the century until his retirement from active business in 1917. These were busy, fruitful years.

In 1915 George Chaffey had the privilege of a reunion with Alfred Deakin. They had not met for nearly twenty years. Deakin had just retired from Federal politics, after having given noble service to the young Commonwealth which he loved so well. Thrice Prime Minister of Australia, he had worn himself out after fifteen years of fighting to consolidate the victory gained over State jealousies by the accomplishment of Federation, and his course was nearly run. In 1915 he was

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* In 1903, they founded the American Savings Bank of Los Angeles, which opened its first branch under A. M. Chaffey's direction in 1905. At this period the Chaffeys also founded the First National Bank of Upland, and acquired interests in a number of country banks in San Bernardino and Los Angeles Counties.

The State laws of California did not then permit banks to have branches outside the municipal subdivision in which they were located. In order that the advantages of branch banking might be fully utilized, A. M. Chaffey, in 1907, formed a holding company called the Associated Banks, which held a controlling interest in a number of banks, and a lesser interest in others. This company operated as a successful agency in bringing the banks in which it was interested into close and profitable co-operation.

The California Bank had its beginning in the American Savings Bank, organized by A. M. Chaffey on February 28, 1903. When it opened for business in a teller's cage in the banking room of the American National Bank, then situated at Second and Broad Streets, George Chaffey, then vice-president of the American National Bank, was President. The branch opened in Boyle Heights at the instigation of A. M. Chaffey was the first branch bank in California.

The American Savings Bank adopted a policy of opening branches in strategic locations and when, at a later date, it merged with the Home Savings Bank of Los Angeles, it had eight such branches. In 1911, George and A. M.

appointed Australian Commissioner to the Panama-Pacific Exposition at San Francisco, and while in California spent much time with the Chaffeys. It was the last meeting of these two valiant fighters in the great cause of irrigation. Alfred Deakin was George Chaffey's guest on a tour of the irrigation centres of California, following the exact course taken by Deakin when he visited America as Chairman of the Victorian Royal Commission on Water Supply, thirty years before. They did not meet again. Deakin returned to Australia soon after, and died a few years later, a martyr, if ever there was one, to his exalted patriotism and devotion to duty.

In his last letter to A. M. Chaffey, Deakin, speaking of George Chaffey and of the controversies which had centred around him at Mildura, wrote :—

"I had every confidence in him from the start, always upholding him as the founder of our irrigation schemes, and the man whom we should have trusted to see them carried out. Please tell him how proud I feel now that the facts are before or ought to be before all Australians."

Throughout his life, George Chaffey has never lost his ancestral love for England, and the characteristic Chaffey

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Chaffey purchased a controlling interest in the Hibernian Savings Bank, which had, at that time, deposits of 400,000 dollars. George Chaffey then became president, and A. M. Chaffey an officer and director. The Hibernian Bank grew rapidly under the skilful, energetic, yet conservative management of the Chaffeys, and later absorbed various other banks.

In 1919, A. M. Chaffey became president of the Home Savings Bank, which, after consolidating with the American Savings Bank, had gone through a series of mergers with a number of small local banks. In 1920, the Home and Hibernian Banks were merged with A. M. Chaffey as president, and a few months later the joint name was changed to California Bank.

On the date of consolidation, June 30, 1920, the merged institutions had less than 31,000,000 dollars in deposits. Present deposits aggregating above 100,000,000 dollars indicate the phenomenal growth of this institution. The organization was rounded out by the formation of the California Securities Company and the California Trust Company.

Later it was deemed advisable to form a company to hold the valuable property the bank had purchased for branch locations, and the California Group Corporation was organized to carry out that and other kindred purposes. In 1926 this corporation acquired two-thirds of the capital of the National City Bank of Los Angeles, which continues to function under that name with assets of some 15,000,000 dollars. The several affiliated institutions of the California Bank have become known as the California Group, and their combined resources exceed 120,000,000 dollars.

While the California Bank has never sought to establish branches outside the metropolitan area of Los Angeles, it has been the pioneer of branch banking in California.

attachment to British ideals. This was strikingly manifested at the outbreak of war, when George and his son Andrew took a prominent part in promoting the Allied cause in Los Angeles. They were active in the formation of the Allies Aid Association, an organization of Los Angeles business men devoted to the cause for which Britain fought.

The Allies Aid Association performed educational work of great value to the Allied cause. It obtained from England speakers to place the real issues of the war before the people of Southern California, and unceasingly advocated intervention on the side of the Allies by the United States. Pro-allied sentiment was slow to awaken in Western America, but the Allies Aid Association triumphed over the counter-propaganda of its enemies, and eventually it drew with it a practically unanimous public sentiment.

His connection with the Allies Aid Association closed the active period of George Chaffey's life. It was, for a man of his ancestry and ideals, a fitting termination to a career packed with adventure, incident and achievement. Henceforward he was to enjoy the evening of life deriving a serene happiness in his old age from the knowledge that his life's work had been accomplished.

In 1917, George Chaffey lost the partner who, having shared the hardships of his pioneering career, was not destined long to enjoy the fruits of success. The death of his wife after a uniformly happy married life of nearly fifty years, was a blow which caused George Chaffey to withdraw from outside affairs. The shock robbed him of that desire for action and savor for business which had been the mainsprings of his life. These he never quite recovered, and he has since lived in peaceful retirement in California.

At the age of eighty, George Chaffey is a vigorous figure, taking a keen interest in life, and particularly in the fortunes of the communities he founded. He has reverted to the hobby of his earlier years—ship-building. His interest in his Australian

*At one period during the Great War, George Chaffey had twenty nephews and near relations serving on the Western Front. One of these, George Frederick, eldest son of the late W. B. Chaffey, rejected in Australia, went to England, enlisted there, and was killed at Ypres in 1917.

VISION of the EARLY 80's
1884
IRRIGATED IMPERIAL VALLEY from COLO. RIVER--1900
RELIEF MAP of ONTARIO, CAL made by U.S. GOVT and EXHIBITED at ST LOUIS EXHIBITION 1903- MODEL IRRIGATION COLONY

GEORGE CHAFFEY AND HIS DREAMS

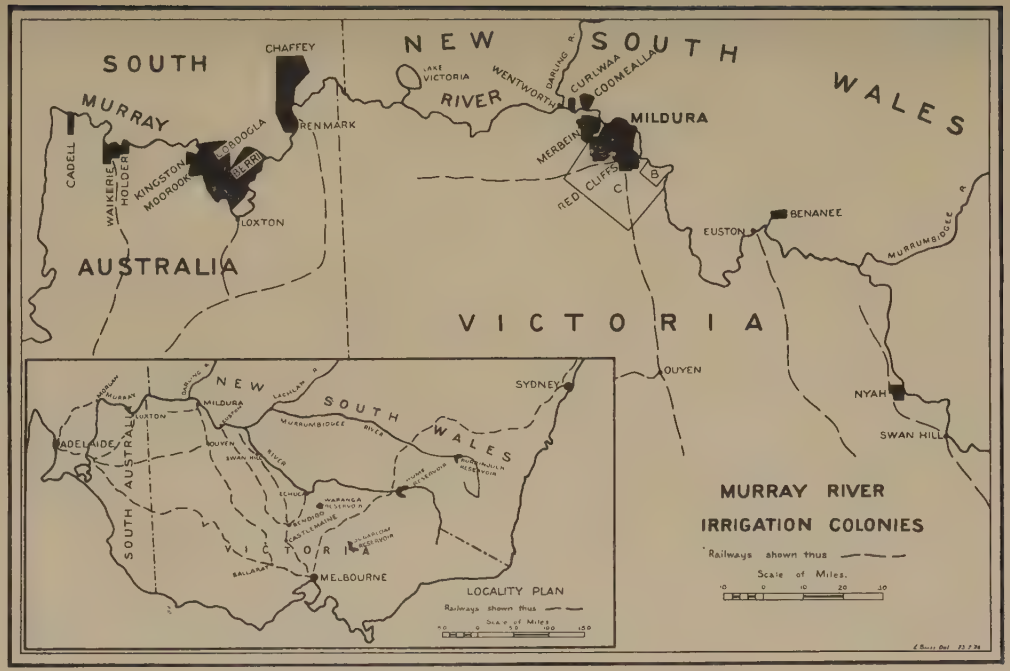
From H. W. Dutton's *Builders and Developers of the Pacific South-west.*

experiences is shown by the fact that he spends much of his time at the seaside home, which he has named Mildura, and he has just launched at San Diego a large schooner, which is the second of his ships to bear the name Mildura.

Australia has not altogether failed to recognize the outstanding achievement of George Chaffey. Red Cliffs, the largest and most successful soldier settlement in Australia, if not in the world, really an extension of Mildura, and the identical area so coveted by George Chaffey—though in those days of low-lift pumps beyond his reach—would have been named after him, but for the fact that South Australia had forestalled Victoria and had called the land lying between Renmark and the New South Wales boundary, "Chaffey." Here also irrigation has given the returned soldier a home amidst the ideal Murray surroundings.

It is not only the successful settlement of Mildura in Victoria, with its offshoots Nyah, Red Cliffs and Merbein, some 40,000 acres of vineyards and citrus groves, and the equally prosperous Renmark in South Australia with its infant colonies, Chaffey, Berri, Cobdogla, Loveday, Kingston, Holder and Waikerie, which have justified George Chaffey's vision: but somewhat belatedly New South Wales, stirred to emulation, has just started Coomealla (the old Nine Mile), adjoining Curlwa, and is putting in hand a fruitgrowing project at Benanee. The great Murray River, from its entrance at Nyah into the once-despised Mallee country, to its seaward turn at Morgan, is a string of little Milduras, of fruitgrowing colonies, all drawing by pumping plants from its harnessed water, and all based firm and sound on the Chaffey dream. In no other place in the world had any man dared in the eighties to suggest raising water for irrigating thousands of acres, at a height several times that of the lift of the pumps then known. George Chaffey dared, and more, executed. To-day, all the Mildura offspring are on like lines; in other parts of the world the Mildura-Renmark system has been imitated.

Bathed in the glowing rays of a sun, brazenly hot beyond any conception of the dwellers in old-world places, breathing in an air of the driest known in the world, the Murray irrigation settlements now produce, in place of, prior to George Chaffey's arrival, a few bales of wool,



MAP OF CHAFFEY PUMP IRRIGATION SETTLEMENTS

showing location in relation to the States of New South Wales, Victoria and South Australia and their capitals.

many bundles of sheepskins and an occasional herd of cattle, the finest dried fruits in the world. Some few score squatter residents and their boundary riders have been replaced by tens of thousands of bronzed men, fair women and ruddy faced children. Something under one hundred thousand pounds of output then: now over three and a half million pounds sterling is produced annually. When all the areas are in full swing there will be something like five million pounds added to Australia's budget.

And this is not all the story. These centres of intense cultivation and dense population became the nuclei of far-flung agricultural settlements, producing vast wealth in wheat and wool. With an immediate market in the irrigated towns, and Mallee railways linking them with metropolis and seaboard, dry-farming areas came into being, encircling the vine-clad blocks and citrus groves with ripening plenty and golden-fleeced sheep.

Sunraysed is the trade name of the Murray Irrigation Colonies products, and apt it is. A project, with living force, has been put forward by the Australian Country Party for the creation of a new Australian State in the Murray Basin, with Mildura as its metropolis. Truly a far cry from the little homestead at which George Chaffey landed in 1886. His dream, so unwarranted, so absurd in the eyes of the local people, has materialized. But not only along the Murray Valley has the Chaffey vision had its effect. In all parts of Australia where sufficient water can be conserved for irrigating, the example of Mildura is followed. From Mildura has been drawn the teachers; to Mildura have thronged the students. From the north to the south; in Queensland, New South Wales, Victoria and South Australia, Mildura and the Chaffeys are household words and synonyms for the successful application of irrigation methods for profitable production from formerly unproductive areas. In sooth the decade spent in Australia by George Chaffey has had an influence, even yet not recognized to its full extent; an influence which will remain until Australian irrigation has expanded to its utmost limit, and has achieved its full measure of success. The Chaffey dream has been embodied in that influence.

* * *

Balboa, California, 1928.

An old man bowed down by the weight of years, living in retirement at a beautiful town seated by the sea, looks back over a life of achievement and service. Musing over the past, he sees again visions of the half-dozen communities scattered over two continents and created by him each symbolizing beauty and fertility founded on his association with it.

Once these were barren sun-seared wastes, hateful to man and beast, and he had been the first to prove that the deserts were not dead, but sleeping. He had dreamed of transforming these parched plains into smiling oases and, with a burning faith in his dreams which convinced the sceptical, he had transformed wildernesses into gardens, bringing prosperity to thousands of home seekers from crowded cities.

Like Moses he had struck the rock and plenteous streams gushed forth. The bare plains smiled and a hundred million blades of grass grew where none grew before. Sage-brush, mallee, salt-bush, mesquite, greasewood and chaparral gave place to orange, vine, fig, olive and date, and radiant corn rippled in the wind.

We have seen that the engines designed by him to stir to fecundity the thirsty pine ridges and blue-bush flats of Mildura were said to be useless by his enemies of thirty odd years ago. Those engines are working to this day forcing Mildura's life blood through to the furthest limits of its great arterial system, daily giving the lie to the critics of 1896. *The old man smiles when he thinks of Mildura's giant heart, still throbbing rhythmically, giving no sign of the syncope said to be imminent more than thirty years ago.*

The Dreamer, now eighty years old, surrounded by love, honor, obedience and troops of friends, is George Chaffey, the Canadian boy who dreamed in a Lakeside town nearly seventy years ago dreams that came true. Throughout the years to come the brimming channels of Etiwanda, Ontario, Mildura, Renmark, Imperial Valley and La Habra will keep his memory green.

THE END

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COMPILED UNDER THE SUPERVISION OF C. N. PERRY.
FORMERLY ASSISTANT TO GEORGE CHAFFEY.
BY H. B. LEWIS.

May 1927.

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T.9.S
T.10.S
T.11.S
T.12.S
T.13.S
T.14.S
T.15.S
T.16.S
T.16½S
T.17.S
SALTON SEA
Orig. El. 190ft. Elev. 197.5 Feb. 1907 Mar. 1917
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